

THE EFFECTS OF PSYCHOTHERAPY ON PERSONS
WITH BULIMIA NERVOSA.

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A thesis submitted for the degree of Doctor of Philosophy (in Psychology)
from the Australian National University.

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September, 1998.

TABLE OF CONTENTS

Declaration	i
Acknowledgments	ii
Abstract	iii
Chapter 1	
1.1 History of Eating Disorders	1
1.2 Features of Bulimia Nervosa	7
1.3 Frequency of Bulimia in the Community	16
1.4 Aetiology	24
1.5 Assessment	39
1.6 Summary	44
Chapter 2	
2.1 Introduction	46
2.2 Dieting as a precursor to bulimia nervosa	46
2.3 Body dissatisfaction as a precursor to dieting	50
2.4 Prevalence of “extreme” dieting practices	53
2.5 Summary	54
2.6 Aims of first study	55
2.7 Method-Participants	55
2.8 The questionnaire	56
2.9 Results	62
2.10 Discussion of results (a)	71
2.11 Discussion of results (b)	76
2.12 Discussion of results (c)	86
2.13 Summary and conclusions	86

Chapter 3

3.1 Treatment of bulimia nervosa	90
3.2 Comparative studies	107
3.3 Cognitive behaviour therapy compared with other psychotherapies	111
3.4 Cognitive behaviour therapy alone compared with cognitive behaviour therapy plus other therapies	114
3.5 Studies of the relative efficacy of components of cognitive behaviour therapy	115
3.6 Summary	118

Chapter 4

4.1 Introduction	121
4.2 Aims of second study	121
4.3 Description of groups	122
4.4 Selection of subjects	124
4.5 Assessment of subjects	125
4.6 Results	131
4.7 Discussion of results	165
4.8 Summary	175

Chapter 5

5.1 Introduction	178
5.2 Aim of third study	178
5.3 Description of group	179
5.4 Selection of subjects	179
5.5 Assessment of subjects	179
5.6 Results	179

5.7 Discussion of Results	219
5.8 Summary	223
Chapter 6	
6.1 Introduction	226
6.2 Study one	232
6.3 Treatment issues	236
6.4 Study two	239
6.5 Study three	244
6.6 Conclusions and future directions	248
References	252
Appendices	273

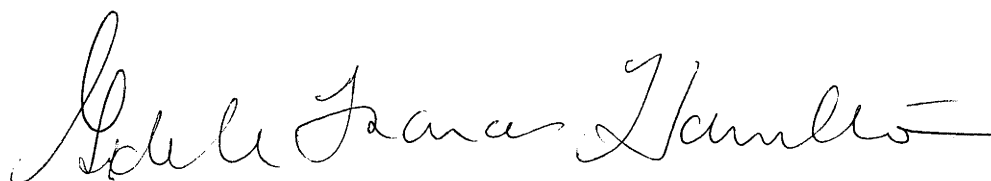
APPENDICES

A. Study 1 questionnaire incorporating EDI.	273
B. CBT/CT/NCBT diaries	274
C. BT diary.	275
D. Full BT manual and maintenance form.	276
E. Full CT manual and maintenance form.	277
F. Full CBT manual and maintenance form.	278
G. Consent forms.	279
H. Eating Disorders Questionnaire, Edition 11.5D.	280
I. Beck Depression Inventory.	281
J. Profile of Mood States.	282
K. ANOVA and MANOVA results for study 2.	283
L. NCBT manual and maintenance form.	284
M. ANOVA, MANOVA and MANCOVA results for study 3.	285

DECLARATION

I declare that this thesis reports my original work, that no part has been previously accepted and presented for the award of any degree or diploma from any university, and that, to the best of my knowledge, no material previously published or written by any other person is included, except where due acknowledgment is given.

Adele Frances Hamilton

A handwritten signature in cursive script, reading "Adele Frances Hamilton", with a horizontal line at the end.

ACKNOWLEDGMENTS

The author wishes to thank the following people; Professor D. G. Byrne, who most wisely guided me through the intricacies of research, analysis and writing; Professor S. W. Touyz, for generously sharing his knowledge of eating disorders and enabling me to find participants for these studies; Mrs M. Reinhart, for her unstinting help with statistics; Mr D. Garth, for invaluable assistance with computer technology, my husband, for his unfailing support, and not least, to all those women who participated in my studies and who taught me so much.

ABSTRACT

Bulimia nervosa has become a serious mental health problem since it was first identified by Russell in 1979, affecting approximately 2% of the female population between 14 and 40 years. In order to successfully treat the disorder, it is important to understand issues important to the genesis of the disorder. Previous research has indicated that socio-cultural factors, such as the valuation of slimness and resultant body dissatisfaction in our society plays a significant role in the development of the disorder.

Study 1 surveyed the dietary practices and beliefs of 399 women in an age group most likely to develop bulimia nervosa. It found widespread dissatisfaction with weight and shape at all ages between 13 and 30 years. Using a self-report inventory (the Eating Disorders Inventory) prevalence of bulimic tendencies in this sample was estimated at between 5.7 and 8.5%. Statistical analyses indicated that respondents diagnosed as possibly bulimic were more likely to diet frequently, to use more "extreme" dietary techniques such as purging, and to have lost greater amounts of weight in the past. They also expressed greater dissatisfaction with weight and shape and endorsed the view that fatness was a sign of lack of willpower. These results indicated the centrality of characteristic cognitions in the development of bulimia nervosa and the importance, in treating it, of addressing both behaviours and cognitions. One treatment approach that does address both these issues is cognitive behavioural therapy (CBT).

Study 2 compared the relative effectiveness of different aspects of Fairburn's 1985 manual-based CBT in 54 women diagnosed with bulimia nervosa. This study compared full CBT with BT, CT and a control group. Treatment was conducted in groups over seven weekly two-hour sessions. Each participant was assessed on the

Eating Disorder Examination (EDE), Eating Disorders Inventory (EDI), Beck Depression Inventory (BDI) and the Profile of Mood States (POMS). This assessment battery was completed by each participant before and after treatment and at four, eight and 12 months follow ups. Statistical analyses indicated that relatively brief group therapy could be as effective as individual therapy, as evidenced by the significant reductions in behavioural and psychological symptoms after treatment, and the maintenance of these improvements during follow up. The study also indicated that CT was almost as effective as full CBT both after treatment and follow up, while the BT group, after initial reductions in symptoms, was more likely to relapse during follow up. This result suggested the hypothesis, tested in the third study, that some behavioural instructions, relating to stimulus control appeared to be redundant. Thus Study 3 investigated the effectiveness of CBT without stimulus control instructions (NCBT) compared with that of the three earlier groups. Nineteen women diagnosed with bulimia nervosa received 10 weekly group therapy sessions lasting two hours each. They completed the same assessment batteries as those in Study 2 and at the same assessment points. Statistical analyses indicated that the new CBT group was not as effective as the original CBT in reducing bingeing, depression and a number of bulimic concerns. The study showed that stimulus control instructions are important in the effective treatment of bulimia nervosa. The theoretical implications of this finding are that cognitive factors are important in the maintenance of bulimia nervosa, and must be addressed in treatment if it is to be effective and that behavioural instructions relating to stimulus control are also important. The clinical implication of the two treatment studies is that it is possible to produce significant and long lasting clinical change using a relatively brief group therapy approach.

CHAPTER 1

1.1 HISTORY OF EATING DISORDERS.

The eating disorders anorexia and bulimia nervosa (bn) have become the subjects of an increasing body of scientific, medical and lay literature. Since the original description of anorexia in 1888, and bn, 1979, understanding of risk factors has increased and therapists have available to them an ever-increasing array of techniques aimed at treating these disorders. However, the specific way in which these therapies work, and what makes one a more effective therapy than another, are still topics that need to be investigated further.

The first scientific description of an eating disorder could be said to have been by Gull in 1888. He described in detail some cases of a “nervous loss of appetite”. The patients described by Gull can now be recognised as suffering from anorexia nervosa.

The features of anorexia that Gull noted were:

- a. “Nervous loss of appetite”, although subsequent research has shown this not to be strictly true. Rather, sufferers deny food and it is only in the later stages of emaciation that this loss of appetite occurs (Garfinkel and Garner, 1982).
- b. Overestimation of body shape, with anorexics seeing themselves as fat, even though they are obviously underweight or even emaciated. This has been described as a “morbid fear of fatness” (Russell, 1962, 1970; Slade and Russell, 1973); “pursuit of thinness” (Bruch, 1973); or “weight phobia” (Crisp, 1967).
- c. Endocrine changes resulting from undernutrition and leading, in part, to amenorrhoea.

The current DSMIV definition of Anorexia Nervosa (APA, 1994) retains these features.

Since its original description, the incidence and prevalence of anorexia have been widely investigated. In a review of epidemiological studies, Hoek (1993) reported that the registered incidence rates of anorexia in females between 15 and 24 years had increased over the previous 50 years from .10 (Theander 1970) to 8.1 per 100,000 per year. Epidemiological studies have also indicated that anorexia is much less common among males (Burns and Crisp, 1985; Hall, Delahunt and Ellis, 1985) and non-Caucasians, (Bhadrinath, 1990; Buchan and Gregory, 1984; Nasser, 1988).

The syndrome, bulimia nervosa, is of more recent provenance. It was first described by Russell in his 1979 article, "Bulimia Nervosa: an ominous variant of anorexia nervosa." In this article Russell reported on 30 patients who resembled anorexics but did not reduce their food intake. He noted; "episodes of overeating constituted the most constant feature of this disorder. Sometimes the overeating alternated with periods of abstinence. Overeating was often overshadowed by more dramatic clinical phenomena; intractable self-induced vomiting or purgation. At least one of these habits was always present, and they were sometimes combined." (p.429). The purging was seen by the sufferers as counteracting the effects of over-eating.

Russell saw bn as a sub-type of anorexia nervosa. The features of both were seen as:

- a. Self-induced loss of weight with severe inanition.
- b. Persistent (in females) amenorrhoea.
- c. Psychopathology characterised as a dread of losing control of eating and becoming fat.

Russell noted that some of the bulimics were of normal weight, and amenorrhoea was not always present. However, as with anorexics, they were preoccupied with their weight and shape, and were abnormally afraid of gaining weight. "The term, 'bulimia' has been chosen to do justice to the bouts of gross overeating which constitute the

central clinical feature from which many of the other clinical phenomena are derived.” (p.444).

Although Russell was the first to give a new label to this particular form of eating disorder, similar cases had been reported earlier. Beumont, George, and Smart (1976) studied 31 females with primary anorexia. They found two distinct groups who induced weight loss differently. The first group, which they called “dieters”, lost weight through denial of food. The second group, called “vomitters and purgers”, lost weight through expelling food, either by intentional vomiting or by using laxatives or diuretics. Hence in one of the primary features of anorexia, ie. loss of weight, there was a significant difference between the methods used to control weight. Beumont et al. also noticed these two groups of anorexics to be different in other areas. They found that “dieters” were usually “introverted, obsessional and withdrawn.” (p.617). On the other hand, vomitters and purgers were more normal in their social interactions and some were “extraverted and histrionic” (p.621).

Both Beumont et al. (1976) and Russell (1979) saw bulimia nervosa or purging behaviour as a part of anorexia. In fact, early reporting of bn, its incidence and critical features was confused by conflicting terminology and by the overlap in symptomatology between the two disorders. In Russell’s initial study of 30 patients, 17 had previously suffered from anorexia, meeting all the necessary criteria including severe loss of weight and prolonged amenorrhoea. However, seven of the 30 had experienced only a moderate loss of weight and short-term amenorrhoea prior to the onset of bulimia, and six could not be considered as suffering from anorexia. Thus, bingeing was not restricted to those suffering from anorexia, but occurred in normal weight women. Bulimia and the related terms, bulimarexia (White and Boskind-White

1981); compulsive eating, (Rau and Green 1974); binge-eating syndrome (Wermuth, Davis, Hollister, and Stunkard 1977); dietary chaos syndrome, (Lacey 1980; Palmer 1980) became widely used by clinicians, although there was some confusion as to whether a symptom or a coherent syndrome was being described. Some researchers felt that the term, “bulimia” should be restricted to recurrent and gross overeating, while “bulimia nervosa” should be applied to overeating followed by deliberate expulsion of food from the body. (Huon and Brown 1984).

Between 1979 and 1987 the criteria used to diagnose bulimia nervosa were very different in the USA and the UK. In 1979 the syndrome (as opposed to symptom) of bulimia was included in DSM-III (American Psychiatric Association 1979).

The criteria listed in Table 1.1 emphasised gorging itself and were little more than a description of typical binge eating episodes (Halmi 1985). As Beumont (1988) pointed out, the above criteria do not give adequate attention to the compensating behaviours such as vomiting and purging that patients usually use to get rid of the unwanted calories they ingest. Nor did they acknowledge the preoccupation with body weight seen in bulimia, which is similar to that found in anorexia nervosa (Fairburn and Garner 1986). Furthermore, the range of eating abnormalities accepted as bulimic is too restricted, and many patients describe their actual eating disturbances as more varied than DSM-III allows, eg., the binges are not necessarily rapid or secretive, not do they invariably consist of high caloric, easily ingested foods (Abraham and Beumont 1982).

Table 1.1: DSM-III Criteria for Bulimia

-
- A. Recurrent episodes of binge-eating (rapid consumption of food in a discrete period of time, usually less than two hours).
- B. At least three of the following:
- 1) Consumption of high caloric, easily ingested food during a binge.
 - (2) Inconspicuous eating during a binge.
 - (3) Termination of such eating episodes by abdominal pain, sleep, social interruption, or self-induced vomiting.
 - (4) Repeated attempts to lose weight by severely restrictive diets, self-induced vomiting, or use of cathartics or diuretics.
 - (5) Frequent weight fluctuations greater than 10lb due to alternate binges and fasts.
- C. Awareness that the eating pattern is abnormal and fear of not being able to stop eating voluntarily.
- D. Depressed mood and self-deprecating thoughts following eating binges.
- E. The bulimic episodes are not due to anorexia nervosa or any known physical disorder
-

Between 1979 and 1987, American researchers used the DSM-III definition, while in the UK, researchers used Russell's 1979 criteria for bulimia nervosa. These are:

- The patients suffer from powerful and intractable urges to overeat.
- They seek to avoid the "fattening" effects of food by inducing vomiting or abusing purgatives or both.
- They have a morbid fear of becoming fat.

The differences in definitions of bulimia nervosa affected research findings, particularly in prevalence studies, where American studies reported higher prevalence of bulimia than European studies.

Fairburn and Garner (1986) proposed that the word bulimia be used as a synonym for binge-eating and that a syndrome of bulimia nervosa be recognised for where “characteristic concerns about shape and weight ...be made a necessary diagnostic feature”(p.413). These ideas were incorporated in the revised criteria for DSM-III-R (American Psychiatric Association, 1987) and in the later DSM-IV (American Psychiatric Association, 1994).

Table 1.2 DSM-IV Diagnostic criteria for Bulimia Nervosa 307.51

A. Recurrent episodes of binge eating. An episode of binge eating is characterised by both of the following:

(1) eating, in a discrete period of time (eg. within a 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances,

(2) a sense of lack of control over eating during the episode (eg. a feeling that one cannot stop eating or control what or how much one is eating).

B. Recurrent inappropriate compensatory behaviour in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting; or excessive exercise.

C. The binge eating and inappropriate compensatory behaviours both occur, on average, at least twice a week for 3 months.

D. Self-evaluation is unduly influenced by body shape and weight.

E. The disturbance does not occur exclusively during episodes of Anorexia Nervosa.

(There is a further distinction to be made between purging type; where the person regularly uses self-induced vomiting, laxatives, etc, or non-purging type; where inappropriate fasting or exercise is used as a weight control method.)

Thus the most recent DSM criteria for bulimia nervosa incorporate elements of both overeating and the purging and bulimia is no longer synonymous with bingeing alone.

1.2 FEATURES OF BULIMIA NERVOSA:

In his 1979 article, Russell described in detail the clinical features he observed among his 30 patients (28 of whom were female, two, male). This description is probably the most comprehensive and has not been bettered in subsequent writings on bulimia.

A. BINGEING AND PURGING.

Unlike anorexics, bulimics did not reduce their food intake. Episodes of overeating alternated with periods of abstinence, or self-induced purging, either through vomiting, laxative or diuretic abuse. At least one of these habits was always present and they were sometimes combined. The episodes of overeating were the immediate precursor of self-induced vomiting or purgation, which Russell regarded as the patients' attempts to counteract the effects of the ingestion of excessive food. In his sample, the episodes of overeating had become frequent, usually at least daily, causing the patients much distress. The purging was to counteract the excessive calorie intake through a binge. Of his 30 patients; 27 vomited as a way of controlling calorie intake; two purged only; one used purging and vigorous running. Sixteen out of 27 who vomited also took purgatives. In every patient, vomiting and/or purging had become frequent, habitual and established over a period of months or even years. The amounts of food consumed during a binge varied from patient to patient. One would eat 10 bars of chocolate in a single binge, while another would spend a week's wages on food. For another, the

amount consumed during a binge was calculated at between 15,000 and 20,000 calories. These observations have been confirmed by subsequent researchers, eg. Abraham and Beumont (1982) reported that bulimics in their sample would consume 27 times the recommended daily allowance of calories on what they described as a “bad day”. Mitchell, Pyle and Eckert (1981), asked 40 bulimic subjects to fill out hourly self-report eating charts. Their subjects’ mean duration of bingeing was 1.18 hours, with a range of 15 minutes to 8 hours. Their mean number of episodes was 11.7 per week, with a range of 1 to 46. Mean number of calories consumed by during an average binge episode was 3,415 calories, with a range of 1,200 to 11,500 calories. Some patients were consuming as many as 50,000 calories a day. Of the total of 40, 37 vomited as a way of counteracting the food taken in. Mean frequency of vomiting was 11.7 times per week. The “usual pattern” Mitchell et al. observed was for subjects to terminate their binges by vomiting.

Thus a wide range in both size and frequency of binges has been observed. However, Fairburn (1982) emphasised that the essence of a binge is that it should be experienced as excess, irrespective of the amount consumed. For example, Garfinkel, Moldofsky and Garner (1980) used the terminology “beyond her control”; DSMIII included the lack of control element as an essential feature of diagnosis and Fairburn in 1981 described “a profound sense of loss of control.” Russell and subsequent researchers have found that vomiting is the most frequently used counterbalance to binge eating. As Russell noted, the vomiting is self-induced, and for those patients using it often, it can become relatively easy. He noted that some bulimics learned the habit from others, or continued using it after a period of sickness. Purgative abuse is similar to vomiting, in that both were seen as ways of getting rid of food, which the patient regretted having ingested. Patients who regularly used purgatives reported enjoying the

sensation of being “empty” or having a “flat stomach”. In Russell’s sample, four patients took daily doses of 12-20 laxatives a day. In a later study, Yates and Sambrailo (1984) reported that their 24 bulimics reported laxative use from 1-100 times a week, with the mean number of days a week laxatives were used being 4.58. In addition to using vomiting or laxatives as ways of controlling their weight, Russell’s group also took amphetamines, diuretics, appetite suppressants, or they may have starved themselves between binges, or exercised excessively. In a study of 275 bulimics, Mitchell, Hatsukami, Eckert and Pyle (1985) found the following range of techniques was used to control or lose weight.

Table 1.3 illustrates the range of purging techniques used by their sample. These figures support the data obtained by Russell.

Table 1.3 Maximum frequency of bulimic behaviours¹

Behaviour	Responders	Several Times a day		Once a week		Several Times a week		Maximum Once a week		Frequency < Once a week		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Binge eating	275	201	73.9	22	8.1	37	13.6	7	2.6	8	2.9	275	100.0
Fasting	265	79	29.8	33	12.5	71	26.8	37	14.0	24	9.1	244	92.1
Exercise	267	84	31.5	68	25.5	53	19.9	21	7.9	18	6.7	244	91.4
Vomiting	270	172	63.7	22	8.1	26	9.6	7	2.6	11	4.1	238	88.1
Laxatives	269	27	10.0	26	9.7	54	20.1	20	7.4	36	13.4	163	60.6
Diet Pills	267	36	13.5	31	11.6	24	9.0	13	4.9	30	11.2	134	50.2
Diuretics	265	15	5.7	12	4.5	29	10.0	10	3.8	24	9.1	90	33.9
Saunas	264	5	1.9	4	1.5	6	2.3	7	2.7	10	3.8	32	12.1

¹ Adapted from Mitchell et al., 1985, p.484.

B. NO WEIGHT LOSS.

Russell also observed, that unlike anorexics, who are severely underweight, bulimics were within normal weight range. Although he did not use standardised tables in making a judgement about what constituted “normal” versus “under” weight, this judgement was linked to the presence or absence of menstruation. Subsequent researchers refer to standardised tables of weight for age, such as the Metropolitan Life Insurance Tables, (1959), or use Quetelet’s Body Mass Index formula, where BMIs (weight in kilograms divided by height in metres squared) between 19 and 25 for women aged 16 years and over is regarded as normal. (Abraham and Llewellyn-Jones 1987).

Russell also noted that amenorrhoea was not a constant or persistent feature among bulimics. Amenorrhoea was linked to amount of weight lost. He observed that in those patients with a relatively healthy weight, menstruation was present. Subsequent research, (Abraham and Beumont 1982; Fairburn and Cooper 1984; Herzog 1982 and Pyle, Mitchell and Eckert 1981) has confirmed this finding.

C. PREOCCUPATION WITH WEIGHT AND SHAPE

In one feature, Russell noticed that anorexics and bulimics were alike; that was in their preoccupation with their body and shape. “The one feature that held fast for both bulimia nervosa and anorexia nervosa was the ‘characteristic’ psychopathology whereby the patients were abnormally concerned with their body size, fearing fatness which they described in excessively harsh terms out of keeping with sensible standards.” (p.432). This is a well-documented feature of bn, being commented upon by many subsequent researchers, (Cooper and Fairburn 1987; Fairburn 1985).

In Fairburn and Cooper’s 1984 sample, 20 % of the bulimic women weighed themselves twice a day while 17.1% actively avoided weighing themselves.

D. PREOCCUPATION WITH FOOD.

As well as being preoccupied with their bodies, Russell's patients were also preoccupied with food to the extent that their concentration was affected. A few mentioned dreams about food. Yet most of his sample declared that the urge to overeat differed from sensations of true hunger. Some felt that eating satisfied an emotional need, but were soon overwhelmed by feelings of guilt for having overeaten. Bulimics were more likely to vomit after consuming what they saw as "bad" food, usually carbohydrate-rich or forbidden food. They were also likely to vomit after consuming what they perceived to be "large amounts" of food. Episodes of overeating were punctuated by attempts to reduce food intake, particularly carbohydrate-rich food. "Thus there was an all-or-nothing pattern to the sequences of eating. It was also observed that overeating and its sequel of vomiting were more likely to occur when the patient felt most intensely that she was fat or in danger of becoming fat. A corollary was that patients would strive to lose weight as a safeguard against overeating." (p.435).

This preoccupation with food and eating was noted by subsequent researchers, including Casper, Eckert, Halmi, Goldberg and Davis 1980; Fairburn 1985; Huon and Brown 1984; and Mitchell et al. 1981.

E. EMOTIONS ASSOCIATED WITH BULIMIC BEHAVIOUR.

Russell's patients reported a range of emotions before and after bingeing and purging. Initially there was a feeling of relief, following the discomfort of being over-full after a binge, and the anxiety about potential weight gain. But generally, there was intense shame and guilt. This has regularly been mentioned in the literature, including Fairburn (1981); Long and Cordle (1982); Wermuth et al. (1977); White and Boskind-White (1981).

Russell noticed that the social setting of bulimic behaviour was also significant.

Overeating tended to be a solitary and secretive habit, unlikely to happen in front of others. In some cases, an interruption to a binge would only occur when others arrived on the scene.

F. PHYSICAL SIDE EFFECTS OF BULIMIA NERVOSA.

- Potassium depletion. Eighteen of his 30 patients had low serum potassium. This feature has also been reported by Wigley (1960) and Wolff et al. (1968).
- Urinary infections and renal failure. One of Russell's patients developed renal failure and eventually required renal transplant. Some of his other patients had intermittent infections.
- Swollen salivary glands. One patient had painless chronic swelling which subsided when vomiting was under control. This feature was also observed by Levin, Falko, Dixon, Gallup and Saunders (1980).
- There may be some loss of weight, but usually not severe.

Other physical side-effects, not originally reported by Russell but noted by subsequent researchers, include: erosion of dental enamel caused by the regurgitation of acid in the stomach contents (Russell 1991); bowel problems related to chronic irritant laxative abuse, low dietary intake and dehydration, including haemorrhoids, chronic constipation, irritable bowel syndrome and rectal bleeding (Russell 1991). Fairburn (1991) pointed out the risk of electrolyte disturbance, the most common abnormalities being hypochloranaemia, hypokalaemia and elevated bicarbonate level; Mitchell et al. (1985) reported that electrolyte disturbances may occasionally be life-threatening.

G. DEPRESSION.

Russell noted that after preoccupation with weight and eating, depressive symptoms were the most prominent feature of the patients' mental state.

Eleven of his sample of 30 had made suicide attempts. In five, the gesture was serious, and one eventually killed herself. Fairburn and Cooper (1984) and Mitchell et al.

(1985) also noted that depression was an accompaniment to bulimia in their samples.

However Russell believed the depression was secondary to the eating disorder, as treatment with antidepressants was effective in relieving depressive symptoms in seven out of his 30 patients, but had no effect on bingeing or purging.

There have been many subsequent studies of the relationship between depression and bulimia. These are discussed in a later section of this chapter.

H. POOR RESPONSE TO HOSPITALISATION

Russell noticed that his bulimic patients actually lost weight in hospital, compared with his anorexic patients, who gained weight. Subsequent research (Fairburn 1981, 1985; Mitchell, Hatsukami, Goff, Pyle, Eckert and Davis 1985)) has indicated that bulimia is best treated on an outpatient basis, unless the patient's physical health is at risk, or they are a suicide risk (Fairburn 1985).

Since Russell's initial study, there have been many others which have extended and confirmed the main features of bulimia nervosa (Fairburn and Cooper 1984; Herzog 1982; Johnson, Stuckey and Schwartz 1980; Pyle et al. 1981).

I. AGE OF ONSET.

Fairburn and Cooper (1984) systematically described 35 bulimic women referred to them by medical practitioners. In this sample, the mean age of onset of bingeing was 19.7 years (SD of 4.2 years) and mean age for onset of vomiting was 20.0 years (SD of 3.7 years). Other descriptive studies have indicated that the typical age of onset is mid

to late teens. For example, Herzog et al (1991) found that the “typical bulimic” is between 14 and 40; Pyle et al. (1981) found their typical age of onset to be between 15 and 18 years; while King (1986) found that the average age of bulimics presenting to general practice to be 16.35 years.

J. PREMORBID PERSONALITY.

Russell did not investigate the patients’ premorbid personalities. He did notice, however, what he called a “high level of achievement scholastically and occupationally” (p.442), judged by the level of education attained, and occupation.

Since then, there have been a number of studies reporting on various aspects of bulimic patients’ premorbid personalities.

In Fairburn and Cooper’s sample, 25.7% had previously suffered from anorexia nervosa, based on Russell’s criteria, 40% had received treatment for an eating disorder. Of these, 64.3% had been treated for anorexia and the rest for obesity or “compulsive eating”. When they compared those patients who had a definite history of anorexia with the remainder, they found few differences. They noted that, compared with the others, those with a history of anorexia nervosa had significantly lower mean current weights, higher mean frequency of vomiting, (105.6 times per month compared with 51.6 times per month) and they were also significantly younger when they began bingeing and vomiting. (mean 17.4 years; SD 2.4; compared with 20.6 years; SD 4.4). “In all other respects there were no clinical differences between the two groups, in particular, their specific psychopathology was very similar.” (p.243)

17.1% had received psychiatric treatment for problems other than an eating disorder and a further 28.6% had received such treatment from their GP. In most cases they had been prescribed antidepressants. None of this group had a history suggestive of dependence on alcohol or drugs.

Other studies of bulimics' premorbid personality (Johnson et al. 1980; Pyle et al. 1981) have not found evidence of significant premorbid psychological disturbance.

K. FAMILY HISTORY.

Fairburn and Cooper (1984) found that 29.4% of their sample reported that a first degree relative had received treatment from a psychiatrist. In most cases the diagnosis had been that of a depressive disorder,

58.8% had a first degree relative who'd been advised by their doctor to lose weight and 44.1% had two such relatives.

Fairburn and Cooper asked their subjects what had precipitated their bulimia. "The most commonly reported precipitant of bingeing was having adopted a rigid diet (60%) and the most frequently cited reason for beginning vomiting was as a response to a gross bout of overeating (68.6%)" (p.240).

There have been many descriptions of bulimia nervosa since Russell's original paper. They generally confirm the clinical picture of bn as different from anorexia. The prime features of the disorder include preoccupation with weight and shape, with alternating periods of fasting and bingeing, which are followed by some form of purging. This behaviour is associated with a great deal of guilt and most bulimics are depressed to some degree, some suicidally, although the depression does not appear to be primary.

1.3. FREQUENCY OF BULIMIA IN THE COMMUNITY.

There are two standard ways of measuring disease frequency in the community. One is incidence, which is defined as the number of new "cases" in the population over a specific period of time. The other is prevalence, which is defined as the actual number of "cases" in a defined community at a certain point in time. In a review of epidemiological studies, Hoek (1993) noted that unlike epidemiological studies of anorexia, most studies of bulimia have reported on prevalence rates, rather than

incidence. He attributed this to the fact that bulimics don't generally receive in-patient treatment and therefore do not appear on hospital records, and to the differences in diagnostic criteria for bulimia over time. In addition, several studies have found that general practitioners have problems detecting eating disorders. Welch and Fairburn (1992) identified 50 cases of DSM-III-R bulimia nervosa in the community and found that only 12% were receiving treatment.

Jorgenson (1992) estimated the incidence of bulimia at 5.5 per 100,000 per year for females between 10 and 24 years in Fyn County, Denmark between 1977 and 1986. This figure was obtained by questionnaires sent to medical practitioners in Fyn County, whereby all possible "cases" were confirmed by follow-up interviews. One methodological problem with this study was that DSM criteria for bulimia were not used to confirm "caseness".

In a study by Hoek et al., (1995), 58 medical practitioners registered all new cases of bulimia nervosa as they appeared in their practices between January 1985 and December, 1989. The incidence rate was calculated by dividing the number of detected incident cases by the number of person years of the population under study, allowing 95% confidence intervals. Using this method of calculation, 85 patients received a first diagnosis of bulimia nervosa, which yielded an incidence of 11.5 per 100,000 person years. Of these, 28.2% were of normal weight, 14.1% were underweight and 57.6% were overweight.

There have been many other studies of the prevalence of bulimia in a range of population groups. In 1991, Stein identified 40 prevalence studies (mostly American) and in 1991 Fairburn and Beglin reviewed 50 epidemiological studies, conducted in various countries. As both of these reviews point out, estimates of frequency of bulimia have varied widely, ranging from a 19% prevalence rate reported by Halmi, Falk and

Schwartz (1981), to a rate of less than 1% as reported by Schotte and Stunkard (1987).

Connors and Johnson (1987) reviewed 15 prevalence studies. They concluded that about 8% of women and 1% of men met the DSMIII definition. Since the time of the Connors and Johnson review, a number of additional prevalence studies have been published and DSM itself has undergone revision. As Stein (1991) suggested, the differences in prevalence rates may be partly attributable to the different diagnostic criteria used to diagnose bulimia or bulimia nervosa. In the DSMIII version, the basic criterion, that of bingeing, did not require either clinicians or clients to specify any particular frequency of bingeing.

Stein related the variety in prevalence rates to four themes in the literature.

a. The authors' use of broad vs restrictive diagnostic criteria. In his review, Stein noted that the highest prevalence rates were reported for college women using broad, unmodified DSMIII criteria, where no particular binge frequency was measured, and assessed via pencil and paper measures. The particular pencil and paper measures used in most studies were typically developed by the particular authors of a study and no validity data on the measures was usually reported. Often the bingeing behaviour was not clearly operationalized (ie. number of binges, or frequencies). Prevalence rates of four such studies (Gray and Ford 1985; Halmi et al. 1981; Hart and Ollendick 1985; Nevo 1985) ranged between 7.7% and 19%. Median and mean rates, however, were over 13% (SD = 3.77).

In addition, Stein found that authors sometimes used "modified" or "restricted" DSMIII criteria. (Healy, Conroy, and Walsh 1985; Herzog, Norman, Rigotti and Pepose 1986; and Pyle, Eckert, Halverson, Neuman and Goff 1983). When an at-least-weekly binge frequency was required from DSMIII, or when DSMIII-R criteria (which

involve a minimum of two binges per week) were used, the rates for college women typically dropped by over 50%. This pattern can be most easily observed in the non-college subgroup, but is also evident among college women. When Healy et al. included a minimum of weekly bingeing (vs no minimum) rates dropped from 7.7% to 2.8% among college women. Similarly, Pyle, Halvorsen, Neuman and Mitchell's (1986) rates dropped from 7.8% to 4.5% when weekly binges were specified. Stein pointed out the importance of the difference in DSM criteria used, "...in most cases where DSMIII was modified to be more stringent in terms of binge frequency, or when DSMIII-R criteria for bulimia nervosa were chosen, studies report quite low prevalence rates even though pencil and paper tests were used to make diagnoses." (p.207).

b. Purging as a required criterion. Stein found that even when binge frequency was specified and purging was added as a criterion, rates for college women dropped an additional 50%. In two studies, Pyle, Mitchell, Eckert, Halvorson, Neuman and Goff (1983) and Pyle et al. (1986), showed successive decrease in prevalence as a function of requiring weekly bingeing vs weekly bingeing plus purging. These reductions were also observed in high school samples (Ben Tovim, 1988; Crowther, Post, and Zaynor 1985).

c. Stein also found that studies that used clinical interviews have typically reported low prevalence rates for bulimia compared with studies relying solely on pencil and paper inventories for determining cases (Nevo, 1985; Schotte and Stunkard 1987; and Thelen, McLaughlin, Mann, Pruitt and Smith 1986). Studies that have used interviews to help verify suspected cases of bn suggest that many authors' self-report inventories probably mis-identify large numbers of non-clinical subjects as bulimic, that is,

prevalence rates obtained via pencil and paper inventories drop precipitously as “false negative” cases are eliminated.

d. Related demographic characteristics. Stein noted the different prevalence rates with samples of different ages and among non-Caucasians. In their 1990 review of 40 prevalence studies, Fairburn and Beglin found that the most commonly reported population was Caucasian and female, between 14 and 40 years, with peak periods occurring during middle to late adolescence (Pope, Hudson and Yurgelun-Todd 1984). When assessed by any method prevalence rates for younger adolescents were lower than those reported for women just a few years older. The median rate for junior high and high school subjects, using self-report indices of DSMIII-R criteria is 4.9%, with a mean of 4.27% and SD of 1.54. (Ben Tovim, 1988; Kagan and Squires 1983; Pope et al. 1984).

Crowther et al. (1985) discussed increasing prevalence rates with age among adolescents (ie. 4.9% for 14 year olds to 13.9% for 18 year olds). A study by Stein and Brinza (1989) found high school girls reported about a 1-2% higher rate of bulimia than did junior high girls. Some studies specifically examined the issue of age or age compounded by occupation and social status, (Hart and Ollendick 1985; Pyle et al. 1983; Stein and Brinza 1989) and it seems that studies involving very young adolescents, women not attending college and women over 21 tend to have lower prevalence rates than do those involving college women.

There have also been a number of studies of specific subgroups within society. Such studies are potentially useful, since, if prevalence rates differ significantly from those obtained in the general population, they may identify possible causative, or at least, risk factors for developing bulimia.

Nevo (1985) reported that Black and Asian college students had lower Eating Disorder Inventory (EDI) scores. While the black sample was too small to place high confidence in, the Asian students had only a 2.7% rate of DSMIII bulimia, compared with a 13.9% rate for Caucasian women. Again, estimates of prevalence were halved after clinical interviews were conducted following screening. Nasser (1986) studied samples of Arab students attending London and Cairo universities. This study suggested that acculturation stresses may be related to the adoption of Western values and the development of eating disorders.

Few studies have reported on the prevalence of bulimia in males. Most have used junior high, high school or college students. Adult males are noticeably absent from the literature. Results of five studies involving restrictive DSMIII or DSMIII-R criteria showed that between 0.0% and 0.4% of college age males were bulimic (based on self-report measures). Lachenmyer and Muni-Brander (1988) report that 5.7% of low socioeconomic status males were bulimic, Leichner, Arnett, Rallo, Srikameswaran and Vulcano (1986) report a rate of 4.3% and Halmi et al. (1981), suggest that 5% of male college students have the DSMIII disorder. King (1986) in one of the most rigorous studies to date, divided eating disorders of clinical severity into cases of bulimia nervosa and "partial syndrome" on the basis of a structured clinical interview. He found that the combined prevalence of these two categories of the disorder was 3.9% among females and 0.5% among males. None of the studies has examined the various possible explanations for this discrepancy between the sexes.

Another demographic variable that has been examined in relation to prevalence is occupation type. Waddell-Kral and Thomas (1990) surveyed 21 female clothing sales personnel and 25 female college students on body attitudes and eating behaviours. Subjects completed self-report inventories. They found no significant difference

between the two groups, except for their scores on the Body Dissatisfaction scale of the Eating Disorders Inventory (EDI). Studies by Garner et al. (1984), and Garner and Garfinkel (1980) of dance and modelling students found that they had similar Eating Attitude Test (EAT) scores to anorexic patients.

As mentioned earlier, it is important to distinguish between disordered eating behaviour and true bulimia nervosa when examining prevalence figures. One study which highlighted this distinction was that of Cooper and Fairburn (1983).

In that study, the following figures were obtained from 369 female attenders at a health clinic.

26.4% reported bingeing (defined as episodes of uncontrollable excessive eating).

20.9% had an episode in the past two months.

0.5% reported binge-eating at least daily.

6.8% reported binge-eating weekly.

6.5% used vomiting as a means of weight control.

2.9% had done so in the past two months.

0.5% vomited daily.

0.5% (additional) vomited weekly.

7.3% used exercise as a means of weight control.

4.9% used purgatives as a means of weight control.

According to their study, 1.9% “appeared to fulfil diagnostic criteria for...bulimia nervosa” (p.139).

SUMMARY OF STUDIES OF FREQUENCY OF BULIMIA NERVOSA.

There have been very few studies of the incidence of bn. Hoek (1993) suggested that this was because bn was harder than anorexia to detect in case registers, and because

of the confusion over diagnostic criteria. One incidence study (Hoek et al. 1995) obtained an incidence of 11.5 per 100.000 person years.

There is a much greater number of prevalence studies. Surveys have revealed a wide range of percentages, from less than 1% to 19%. Factors which affected the prevalence rates were:

- Whether self-report or direct interviews were used to obtain data.
- Whether minimum frequencies of bingeing and purging behaviours were required.
This became less of a problem from 1987 when prevalence studies started using DSMIII-R diagnostic criteria, which requires a minimum of two binges per week for the last three months in order for a diagnosis of bulimia nervosa to be reached.
- Sex. Surveys of males have consistently reported much lower frequencies of both dieting and bulimia nervosa.
- Race. Studies to date suggest that racial groups other than Caucasian have lower prevalence rates.
- Occupational groups. There is some evidence to suggest that occupations with heightened awareness of body weight and shape, such as among sportspersons or models, have a higher prevalence of bn than in other occupations.
- Age. The ages generally surveyed in the studies listed above have been between 14 and 40 years, with adolescents being the most frequently reported.

However, as the 1983 study by Cooper and Fairburn indicated, it is important to distinguish between disordered eating behaviours and true bulimia nervosa. They found that much greater numbers of women reported binge eating (26.4%) compared with the number who would meet diagnostic criteria for bulimia nervosa (1.9%).

Unlike anorexia nervosa, the prevalence figures for bulimia do not seem to be increasing over time, when one considers results obtained from the more recent surveys (Fairburn and Beglin 1990; Hoek 1993).

1.4 AETIOLOGY

Research into the aetiology of eating disorders has produced conflicting results and there is, as yet, no definitive statement as to the causes of bn. Most researchers in the field would agree that it seems to be multi-determined, with psychological, social, familial and physical factors all playing a part. In reviewing the history of research into eating disorders over the past 40 years, Hilde Bruch (1985) noted: "...there is need to emphasise the complexity of these conditions. They reflect the interaction of biological, psychological and social factors. It is not always possible to keep the various factors, which work in close interaction, separate." (p.8).

Research has focussed on five main areas:

a) Familial factors.

Some studies have examined the link between family size, birth order, sex of siblings and bn. The findings are confusing. Hall (1978), and Lacey, Gowers and Bhat (1991) found an excess of female siblings. Crisp (1970) found the converse, Garner and Garfinkel (1982) found no difference. Similar studies with anorexics have also produced such conflicting results.

One researcher (Wright 1988) has hypothesised a link between feeding experiences in infancy, the inability to identify hunger correctly or to distinguish it from other states of bodily need or emotional arousal and eating disorders. However, no clear link has been established between these factors.

Other studies have attempted to establish a causal link between early unfavourable sexual experiences and bulimia. Root (1991) hypothesised that the violation of physical

space during sexual abuse and rape epitomised loss of control over one's body and the safety and order of one's environment, and that controlling one's body was an irrational way of controlling one's environment. In addition, bulimic behaviours are seen as an attempt by women to symbolically rid themselves of the assault.

Lacey (1990) studied 112 normal weight bulimic subjects and found that their prevalence of incest and indecency was only slightly higher than figures derived from general population surveys. Waller (1991) reported data on the prevalence of sexual abuse in 67 anorexic and bulimic subjects. He found a significantly higher prevalence of sexual abuse among bulimics but was unable to establish a causal relationship. In a contrasting study, Palmer, Oppenheimer, Dignon, Chaloner, and Howells (1990) of 158 women with mixed "eating problems" found no link between early unwanted sexual experiences and the development of their eating disorder.

Connors and Morse (1993) reviewed 11 studies of the relationship between eating disorders and sexual abuse. They found a wide range of correlations, partly due to the heterogeneity of eating disordered patients themselves. They concluded that on average, about 30% of eating disordered patients have been sexually abused, a figure comparable to rates found in normal populations.

Thus there is no strong evidence of a statistical link between abuse experiences and bulimia, and no evidence at all of a causative link. As Connors and Morse point out, "It is clear from the data that child sexual abuse is neither necessary nor sufficient for the development of an eating disorder." (p.9). However, they do suggest that there may be a link between more general family "disturbance" and the development of an eating disorder, than specifically sexual abuse and eating disorders.

Practitioners of Family Therapy point to the link between styles of family interaction and the development of an eating disorder. Stern, Dixon, Jones, Lake, Nemzer and

Sansone (1989) found a “tendency” of eating disordered families (both anorexic and bulimic) to rate themselves as less supportive of each other and less encouraging of the open expression of feelings (as measured by a self-report questionnaire). Schwartz, Barrett and Saba (1985), in a descriptive study of over 100 normal weight bulimics found eight characteristic interaction styles. These were: enmeshment, overprotectiveness, rigidity, lack of conflict resolution, involvement of the patient in parental conflict, isolation, consciousness of appearance and a special meaning attached to food and eating. Thus, restricting food intake, or bingeing and purging could be seen as the bulimic’s way of maintaining some separation from the parents, or as a way of providing a joint focus for parents who may otherwise be in conflict. The first five of these patterns have been noted by others to be present not just in families of bulimics, but in the families where one member is presenting with a psychosomatic illness (Minuchin, Rosman, and Baker 1978). Unfortunately much of the evidence in support of the family interaction model is descriptive and anecdotal in nature and is thus hard to assess with any rigour.

b. Bulimia as an affective disorder.

One of the most controversial aetiological theories is that bn is a variant of depression (Herzog 1982; Hudson, Pope, Jonas, Yurgelun-Todd 1983). Several lines of evidence suggest that people may be similarly predisposed to bulimia nervosa and to depression. First, many bulimics suffer from major depression (Cooper and Fairburn 1986; Hinz and Williamson 1987). Hudson, Pope, Yurgelun-Todd, Jonas and Frankenburg (1987) found that 32% of 70 bulimic women had an onset of affective disorder before an onset of bulimia, 32% experienced an onset of both disorders at the same time, and 36% experienced the onset of affective disorder after an eating disorder.

Second, many bulimic symptoms are improved with the use of antidepressant medication (eg. imipramine, Pope, Hudson, Jonas and Yurgelun-Todd 1983), MAOs (Walsh, Stewart, Wright, Harrison, Roose, and Glassman 1982), desipramine (Hughes, Wells, Cunningham, and Ilstrup 1985), SSRIs such as fluoxetine (Fichter, Leibl, Rief, Brunner, Schmidt-Auberger and Engel 1991) or combinations of antidepressants (Mitchell, Pyle, Eckert, Hatsukami, Pomeroy, and Zimmermann 1990) and bulimics have been shown to have abnormal results on the dexamethasone suppression test (DST) with 20%-60% of normal weight bulimics showing abnormal results (Kaplan, Garfinkel and Brown 1989; Kaplan and Woodside 1987).

Third, the rates of affective disorders among first degree relatives of bulimics are high, ranging from 34% to 60% (Hatsukami, Eckert, Mitchell and Pyle 1986). Kassett, Gershon, Maxwell et al (1989) used a family study method to compare major affective disorders in 40 bulimic women and 24 controls. They directly interviewed 62% of 303 first degree relatives using the Schedule for Affective Disorders and Schizophrenia Lifetime version (SADS-4). The predicted morbid risk for major affective disorder in relatives of bulimics was 28% versus 8.8% in relatives of controls. Both bipolar and unipolar illnesses showed increased prevalence in first degree relatives of bulimics, but a stronger risk was seen for unipolar depression. This high incidence of affective disorders in the families of bulimics would suggest that there is a biological and affective basis for bulimia (Hinz and Williamson 1987) which resembles the apparent genetic basis for affective disorders.

In spite of the impressive amount of evidence, however, a number of recent reviews has concluded that bn and depression are distinct entities that do not share a common biological predisposition (Hinz and Williamson 1987; Levy, Dixon and Stern 1989; Strober and Katz 1987). Cooper and Fairburn, (1986) and Fairburn, Cooper, Kirk and

O'Connor (1985) found substantial differences between bulimic patients and affective disorder patients. In particular, bulimics tended to have more obsessions and anxiety, whereas true depressives were sadder and more suicidal. These researchers concluded that depression is a consequence rather than a cause of bulimia nervosa.

Furthermore, very few of the studies that found high rates of depression in first-degree relatives of bulimics used control samples for comparisons (Hinz and Williamson 1987; Hudson et al. 1983). Stern et al. (1984) did use an appropriate control group and they found the prevalence of depression in relatives to be 9% for bulimics and 10% for controls. In short, the current evidence is conflicting as to whether bulimics come from depression-prone families.

Even if the families of bulimics do have a high rate of genuine affective disorders, it is unclear whether this represents biology or disturbed family dynamics. For example, Mitchell, Hatsukami, Pyle, and Eckert (1986) compared 111 bulimics with a family history of depressive illness with 164 bulimics without this family history. They found that the bulimics with a family history of depression were more likely to have been treated previously for depression, but both groups had similar scores on the Hamilton Rating Scale, suggesting equal levels of affective disturbance. Thus the greater tendency to have been treated for depression could be due to a greater familial awareness of the disorder rather than due to a genetic link. In another study, Pyle, Mitchell and Eckert (1981) found that their normal weight bulimics came from "stable homes".

Although impressive, the biochemical demonstrations of a link between depression and bulimia have also fallen short of providing definitive conclusions about the relation between depression and eating disorders (Kaplan and Woodside 1987). For example, antidepressant medications have been shown to be effective in treating a variety of

psychological disorders (eg. panic disorder, school phobia, cocaine addiction, posttraumatic stress disorder and enuresis; Levy et al. 1989). Thus a positive response to antidepressant medication does not in itself confirm a causal link between depression and bulimia. Also, DST results can be affected by abnormal feeding patterns or chronic undernourishment (Kaplan and Woodside 1987, Mitchell, Specker and de Zwaan 1991). Kaplan, Garfinkel and Brown (1989), found that bulimic DST nonsuppressors were significantly thinner than bulimic DST suppressors. In addition, Strober and Katz (1987) pointed out that the clinical and physiological correlates of depression and bn are quite distinct.

In a review of the literature on the affective variant hypothesis, Hinz and Williamson (1987) concluded that the evidence so far does not support the notion that bn is a version of affective disorder. They note: "Bulimia is not an affective disorder just because bulimic symptoms can be treated with antidepressant medication.... An alternative hypothesis is that bulimia is often accompanied by depression as in other chronic disorders, such as alcoholism, chronic pain, and obsessive-compulsive disorder." (p.155).

c.)Psychoanalytic Theories.

Early theories, particularly with reference to anorexia, focussed on the disturbed eating function, the "oral" component. Anorexia was viewed as a form of conversion hysteria that symbolically expressed repudiation of sexuality, specifically of "oral impregnation" fantasies. Later theorists, as exemplified by Hilde Bruch (1961, 1962, 1966, 1970, 1974, 1985), emphasise anorexic or bulimic women's feelings of helplessness and ineffectiveness in conducting their own lives. The severe discipline over their own bodies represents a desperate attempt to ward off panic about being completely powerless. Bruch noted that anorexia in particular seemed to occur in individuals who

had appeared successful and rewarding children from stable family backgrounds.

However, it seemed that little attention was paid to the expression of the child's needs, wants and feelings. Thus patients experienced themselves as acting only in response to demands coming from others and not doing anything because they wanted to. Thus, perceptions of their bodily and emotional sensations were often inaccurate and they did not trust themselves to identify their own needs and feelings accurately. According to Bruch, this gives rise to a "split" between body and self which becomes the focus of therapy. According to Bruch, anorexic thinking style is immature and egocentric. She believed that their concrete style of thinking led them to expect to reach interpersonal effectiveness through rigid discipline over the body.

It is hard to assess the validity of the psychoanalytic view of causation as many of the studies are descriptive in nature and lack appropriate controls.

d.) Behavioural models.

Exponents of these models acknowledge the importance of social and cultural factors in the genesis of bn, but add that there needs to be more focus on the behavioural aspects of bulimia, namely, bingeing and vomiting. There are three behavioural models of bulimia, each of which leads to its own treatment approach:

i.) The eating habit control model, described by Johnson and Brief (1983). According to this model bulimics have a deficit in knowledge or skill about how to maintain a normal weight through appropriate regulation of food intake and activity. The typical progression of bulimia nervosa involves the person's attempts to lose weight with an unrealistic or harsh diet. When this fails, the patient overreacts and binges (Wardle and Beinart 1981). The patient then compensates for binge eating episodes with even more drastic diets. Unable to get out of this cycle of dieting and bingeing and into a moderate form of dieting by eating "normal" amounts of food, the patients may then

resort to vomiting, to counterbalance the effect of the calories consumed. Thus vomiting becomes reinforced as a method of weight regulation. According to the eating habit control model, the patient in treatment should be helped to resist urges to binge and establish eating and exercise habits that are realistic in the long term by using behavioural weight control methods similar to those used for obesity (Johnson and Brief 1983). Alternatively, the patient is encouraged to resist bingeing and dieting lest even moderate forms of restraint precipitate binges in the future (Orbach, 1978, Wardle and Beinart, 1981).

ii.) The interpersonal stress model. According to this model, bingeing is triggered by stressful antecedent events. Negative feelings of deprivation, depression, anxiety, anger and relationship problems involving loss and rejection stimulate the urge to binge. Bingeing then temporarily reduces those stresses (Abraham and Beumont 1982) or can be seen as “an escape from self-awareness” (Heatherton and Baumeister, 1991, p.86). From this perspective, binge eating fills a void in the patient’s interpersonal skills and coping strategies and eventually develops into an all-purpose mechanism to regulate negative emotions. Bingeing would not occur if the patient were to exercise adaptive coping strategies. When vomiting is present, it can be viewed as a secondary behaviour that is used to relieve guilt and other negative emotions after eating. However, vomiting is not considered essential for initiating or sustaining the disorder, it merely offsets the effects of the driving force of the disorder, bingeing. According to this model, the patient in treatment should be helped to resist bingeing in times of stress and to practise other stress-reducing behaviours instead. This particular technique is one of several employed by Fairburn in his cognitive-behavioural approach (Fairburn, 1985).

iii.) The anxiety reduction model. The main proponents of this theory are Rosen and Leitenberg (1985). They point out that not all bulimics vomit after binge eating, but that some vomit after relatively normal food intake, and that others vomit after consuming what they consider to be “bad” food. As in anorexia, there is a morbid fear of weight gain. Eating elicits this anxiety and binge eating generates even higher levels of anxiety. Vomiting momentarily reduces this anxiety. Rosen and Leitenberg argue that vomiting in bulimia nervosa serves an anxiety-reducing function similar to compulsive handwashing and checking rituals in obsessive-compulsive disorder. In support of their theory, Rosen and Leitenberg cite two studies, Johnson and Larson, 1982; and Leitenberg, Gross, Peterson, and Rosen, 1984. The first study took bulimics’ self-ratings of mood and eating-purging behaviour every two hours throughout the day for one week. They found that vomiting relieved negative feelings of anger, inadequacy and lack of control. The latter researchers had bulimics eat larger amounts of food than they normally would, and were prevented from vomiting. They found that eating was associated with a dramatic increase in anxiety. In support of their model, Rosen and Leitenberg point out that bulimics rarely binge if they are unable to vomit. Thus, vomiting relieves the anxiety generated by eating “bad” foods, or by bingeing. Once it has been established as an escape response, vomiting becomes the driving force that sustains binge eating, not vice-versa. In fact, in the typical progression of bulimia nervosa, once self-induced vomiting is learned, bingeing usually becomes more severe and frequent (Abraham and Beumont, 1982). Vomiting is so effective in relieving guilt and the fear of weight gain that it becomes increasingly unnecessary for the bulimic to resist her urges to binge. Thus, anticipation of vomiting frees the bulimic from normal inhibitions against overeating. In treatment, the first two models, binge eating is the primary target problem for treatment, and vomiting is

considered to be a secondary problem. In the anxiety reduction model, it is vomiting that drives bingeing and not vice-versa, and that to gain control over the disorder, the problem must first be attacked from the vomiting side rather than the bingeing side.

e.) Psychosocial theories.

These recognise a number of factors, such as the higher prevalence of eating disorders in Western society, among higher socio-economic classes of society, among women, in occupations which have a stonger emphasis on body shape or fitness. Also noteworthy is the fact that eating disorders often occur in the context of dieting. Dieting behaviours and pro-dieting attitudes are consistent and widespread (Abraham, Mira, Beumont, Sowerbutts and Llewellyn-Jones 1983; Connors and Johnson 1987).

Huenemann, Shapiro, Hampton and Mitchell (1966) found that twice as many girls believed they were overweight than actually were overweight, and by the twelfth grade more than half the girls reported dieting to lose weight. More recent estimates of dieting behaviour are even higher. Hawkins (1983) found that 80% of the girls in their sample, but only 10% of the boys, reported having been on a diet before age 13.

Jakobovits, Halstead, Kelley, Roe, and Young (1977) found that up to 77% of college women described themselves as dieters. Thus dieting behaviours are widespread among females and begin at very early ages. Heatherton and Baumeister (1991) noted, "dieting is often motivated by societal messages that it is undesirable to be overweight.

Ample evidence suggests that modern Western society disparages the obese body shape."(p.89). De Jong and Kleck (1986) reviewed the literature on body weight stereotypes and found that compared with slimmer peers, obese individuals are viewed as less intelligent, are less often chosen for friends, are thought to have fewer friends and are stereotyped as lonely, shy, greedy for affection and dependent on others. The link between an obese shape and social rejection is well established in their review.

However, one does not have to be obese to worry about weight and shape. The perception of a socio-cultural bias to slimness may be enough to affect self-perceptions. Mori, Chaiken and Pliner (1987) and Striegel-Moore, Silberstein and Rodin (1986) have noted that women's eating behaviour is affected by perceived social and cultural standards and interpersonal expectations in addition to personal, internalised standards about appropriate feminine behaviour and appearance. Powers, Schulman, Gleghorn and Prange (1987) found that bulimics, compared with controls, reported an intense fear of being obese and experienced feelings of being fat even though they were statistically underweight (see also Fairburn, 1985). The average woman would like to be thinner than she is and would like to be thinner than the average man wants her to be (Fallon and Rozin 1985). This tendency is especially strong among women with eating disorders; other women desire body sizes that are comparable to what they believe men prefer (Zellner, Harner and Adler 1989). Thus, abnormal eating patterns are associated with difficult and perhaps exaggerated standards of thinness.

Recent trends have accentuated the stigma of obesity, although the reasons for these changes are obscure. Before the twentieth century, feminine beauty was often associated with a fuller figure, as typified by the figures in Rubens paintings. The recent idolisation of thinness has had a great impact on women (Gross and Rosen 1988; Striegel-Moore, Mc Avay and Rodin 1986). Garner, Garfinkel, Schwartz, and Thompson (1980) documented a shift towards a thinner shape as ideal for females in the US culture over a 20 year period. Data from Playboy centrefolds and Miss America Pageant contestants indicated a significant trend towards a thinner standard. Over the same period there was a significant increase in diet articles in six popular women's magazines. These changes occurred in the context of increasing population weight

norms for young women. In a study which extended these findings, Wiseman, Gray, Mosimann and Ahrens (1992) found that the trends first noticed by Garner et al. were continuing, i.e. there was a further decrease in body size of Miss America contestants and the percentages of diet and exercise articles in popular American women's magazines continued to increase. It was hypothesised that this pursuit of slimness led to dieting behaviour in young women, and is linked to the development of eating disorders. Garner et al. also say, "...the recent increase in anorexia may be related to increasing social pressures on women to be slim and the interaction between cultural ideals for beauty and success." (p.490). Thus, slimness gets paired not only with beauty, but with more general success in life as well.

Heatherton and Baumeister have argued that "eating disorders are more frequent in females because society targets them specifically with the message that thin physiques are preferred. Females receive from multiple sources the message that beauty means thinness and this message interacts with a heightened sensitivity to socio-cultural mandates as well as to personal opinions of others." (p.90). A corollary of this is where there may be strong occupational, as well as personal, demands for slimness.

Thus, ballerinas and other dancers have higher rates of eating disorders than do other women and they score higher on inventories of eating disorders (Garner, Olmstead, Polivy and Garfinkel, 1984). Garner and Garfinkel (1980) compared the weights and heights and EAT scores of dance and modelling students with those of anorexic patients and music students. They found that anorexia and excessive dieting concerns were over-represented in the dance groups. They suggest that the occupational pressures on women to be slim may be one of the causes of an eating disorder.

It may not only be those occupations where slimness is relevant that are linked to the development of an eating disorder. Herzog et al. (1986) were specifically concerned

with the impact of high expectations for career success. They found that 12% of female medical, business and law students met the criteria for bulimia in contrast to 5% of the general population. Butterfield and Leclair (1988) found bulimics to have unrealistic expectations for performance and achievement. Both Mizes (1988) and Katzman and Wolchik (1984) found that bulimics scored higher than control subjects on measures of irrational demand for approval and unrealistically high standards. These high self-expectations, and the fact that they are mostly measured in college students, could also partly account for the higher prevalence rates reported among older, college age populations than among high school students.

f.) Stress and bulimia.

Several studies (Abraham and Beumont 1982; Davis, Freeman, and Solyon 1985; Herman and Polivy 1975; Herzog et al., 1986), have reported on the link between the experience of “stress” or negative emotional states and eating or bingeing. Most of the research has been in relation to obesity. Abraham and Beumont (1982) had 32 bulimic patients describe factors they perceived as precipitating their binge eating. Ninety one percent claimed “stress” precipitated a binge and “feeling bored or lonely” precipitated a binge in 59%. Herzog et al. (1986) noted: “female medical students with eating disorders have described how food can become a remedy for loneliness, depression, academic stress and low self-esteem.” (p.360).

There are two versions of the relationship between stress and food. Many of the studies have been with animals and fewer have been with humans. One, exemplified by Schachter and Rodin (1974), is that overweight individuals are “over controlled” by food related cues, while their eating is relatively unaffected by internal hunger and emotional states. Another view, exemplified by Bruch (1973) and Herman and Polivy (1975), is that over eating is a mechanism to reduce anxiety generated by internal

emotional states. However, Robbins and Fray (1980), in an extensive review of the literature of studies involving both animal and human eating and stress, concluded that eating is induced by stress, but the eating does not act to reduce that stress and that the eating response is learned in much the same way as eating in response to food deprivation. Herman and Polivy (1980), in a rejoinder to the Robbins and Fray article, pointed out that many of the studies measuring stress relief and eating did so immediately after eating, rather than during eating. They concluded that the reduction of stress accomplished by eating is specifically confined to the period of eating. Reporting on an earlier study, Herman and Polivy noted that dieters ate somewhat more when anxious, while non-dieters ate much less.

A conflicting result was reported by Powell and Thelen (1996), who found that negative mood (obtained from self-report inventories) was elevated during the whole binge-purge cycle and did not decline after purging.

Thus, the studies listed above suggest that while stress may play a role in the symptomatology of bulimia via binge eating, it does not, in itself, appear to be causal. As Herman and Polivy (1980) suggest, it may be important causally when seen against a background of chronic self-restraint.

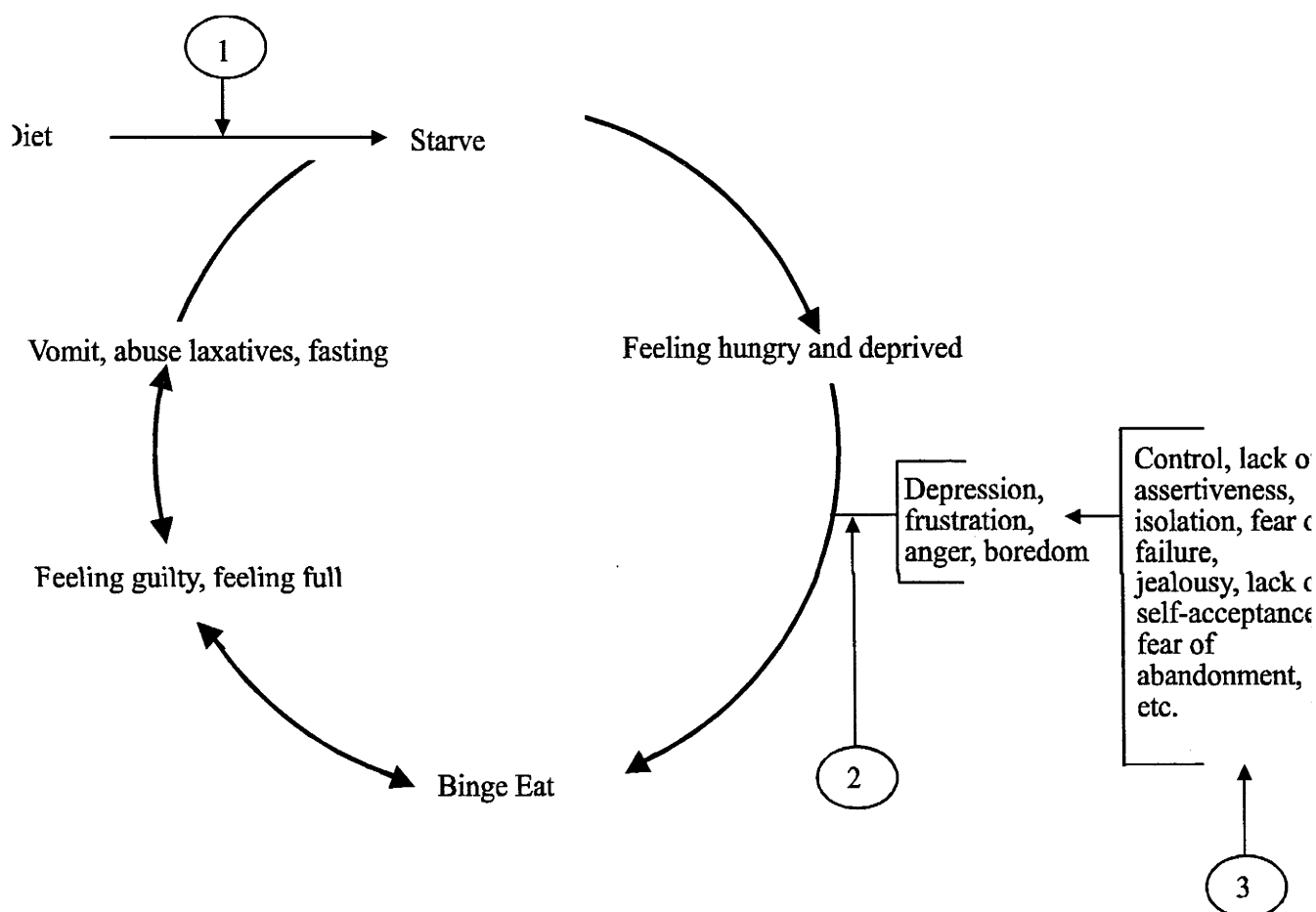
g.) The cognitive model.

This emphasises the primacy of disturbed thoughts and beliefs about weight and shape in the bulimic's life (Fairburn, 1981) and is based on the Beck, A.T., Rush, A.J., Shaw, B.F. & Emery, G. (1979) cognitive model of depression. This states that experience leads people to form assumptions or schemata about themselves and the world, which are subsequently used to organise perception and to govern and evaluate behaviour. This skill is necessary to normal functioning, but in some cases, assumptions are rigid, extreme, resistant to change and hence "dysfunctional" (Beck et al. 1979). As applied

to bulimia, these assumptions or schemata apply specifically to the self in relation to weight and shape.

A fuller description of the cognitive model will be found in Chapters 3 and 6.

The interaction of a number of elements in the genesis of bulimia is illustrated in the



following diagram (Hsu and Holder 1986, p.66).

Fig.1.1 Interaction of factors in the genesis of bulimia nervosa

Thus aetiology of bulimia nervosa remains unclear. Research into family size, birth order etc. has not produced positive results, nor has the research into the relationship between early unwanted sexual experiences and bn. There seems to be some link between depression and bn, but whether it is secondary to depression or vice versa, is still unclear. The balance of evidence seems to suggest that depression is secondary to

bn, and that the expression of depression in bulimics is different in quality to that of normal depressives (Frank, 1991). The research into psycho-social factors, such as the link between societal pressures for slimness and eating disorders, has produced some interesting results, and certainly theories as to causality would have to take these factors into account. However, these psycho-social factors are unlikely to be a sufficient explanation for the genesis of bulimia. As Bruch (1985) states: "The common argument points to the cultural emphasis on increasing slenderness as the determining factor. In my opinion this does not do justice to the psychological complexity of the disorder which reflects a much more severe disturbance than dieting out of control." (p.9).

1.5 ASSESSMENT

Initial assessment of eating disorders was based on material obtained from clinical interviews. As the fundamental psychological and behavioural symptoms were identified, it became obvious that more objective measures of the features of eating disorders were needed. Some of the earlier studies, reporting on prevalence rates or treatment effects, developed their own (Halmi et al. 1981; Healy et al. 1985; Kagan and Squires 1983; Pyle et al. 1983).

One of the earliest attempts to measure eating problems objectively was by Slade (1973). He developed a 22-item scale for assessing anorexic behaviour. The scale measured three dimensions of behaviour: resistance to eating; methods of disposing of food: and overactivity. It was designed to be administered by observers who would evaluate patients in a hospital ward. Results were reported for 12 anorexic patients and 12 psychiatric controls and it was found that the two groups differed significantly on the rated behaviours. Although Slade's rating scale appeared to be useful in an inpatient setting, it had several limitations. First, the sample on which the scale was

validated was very small; second, there was no indication that the raters were unbiased; third, the questions required prolonged observation for a representative judgement to be made in each case. In addition, the rating scale tapped only three dimensions of anorexic behaviours. It did not provide an index of other characteristic behaviours which may be equally representative of the disorder, such as disturbances in body image and interoception, which have been described (Bruch 1973; Garner, Stancer and Moldofsky 1976).

An early test which aimed to measure some of these features was the Eating Attitudes Test (EAT-40) developed by Garner and Garfinkel (1979). This is a 40-item scale, which is presented in a six-point, forced choice, self-report format. The EAT was validated using two groups of female anorexic patients ($N = 32$ and 33) and female controls ($N = 34$ and 59). Total EAT score was significantly correlated with criterion group membership ($r = 0.87$, $p < 0.001$) suggesting a high level of concurrent validity. There was very little overlap in the frequency distributions of the two groups and only 7% of the normal controls scored as high as the lowest anorexic patient. Female obese and male subjects also scored significantly lower on the EAT than anorexics.

Recovered anorexics scored in the normal range on the test, suggesting that the EAT is sensitive to clinical remission. The original 40-item version of the EAT was later abbreviated based on factor analysis of the items (Garner, Olmstead, Bohr, and Garfinkel 1982). This is the EAT-26. The EAT has been used as a screening instrument for detecting cases of anorexia in groups at high risk for the disorder (Garner and Garfinkel 1980) as well as identifying abnormal eating patterns among college students (Button and Whitehouse 1981).

In their validation of the EAT-40, Garner and Garfinkel (1979) pointed out that some of the control subjects scored as “symptomatic” on particular items. In addition, a

significant percentage (7%) of non-anorexic subjects scored in the range overlapping with the lowest anorexic subjects. Thus they stress the necessity for backing up a “diagnosis” of eating disorder with a clinical interview to eliminate false positives. This argument was also raised by Fairburn and Beglin (1990).

The EAT is a widely used measure in research into eating disorders, particularly anorexia. Some other tests which have been developed include the Binge Scale of Hawkins and Clement (1980); Binge Eating Scale (Gormally, Black, Daston and Rardin, 1982); the Bulimia Test (BULIT), (Smith and Thelen 1984); the Dutch Eating Behaviour Questionnaire (DEBQ); (Van Strien, Frijters, Bergers and Defares 1986); Body Shape Questionnaire (Cooper, Taylor, Cooper and Fairburn 1987); Bulimic Investigatory Test (BITE), (Henderson and Freeman 1987). As the names of these tests suggest, many of them focus more on the behavioural features of bulimia, and very specifically on bingeing, and do not attempt to tap the psychological aspects of bulimia, which are widely recognised by researchers in the field to be also important in both anorexia and bulimia.

One test which does attempt to measure these psychological features is the Eating Disorders Inventory (EDI) developed by Garner, Olmstead, and Polivy (1983).² The EDI is a multifaceted instrument designed to assess psychological characteristics relevant to anorexia and bulimia. Justification for the development of the EDI was based on the growing recognition that anorexia and bulimia are multi-dimensional disorders with considerable psychological variability across the patient population. (Garner and Garfinkel 1980).

² Since research for this study was commenced a new version of the EDI, with two new scales, was published (Garner, 1991) but discussion of this test will be restricted to the test that was used in the present study.

The dimensions that the EDI measures are: drive for thinness, bulimia (which differentiates those women who use restriction of food intake as a means of controlling weight from women who use purgation as a weight control mechanism), body dissatisfaction, ineffectiveness, perfectionism, interpersonal distrust, interoceptive awareness and maturity fears.

The EDI differentiated between individuals with anorexia and obesity as well as formerly obese subjects recruited from a weight-loss programme. Garner et al. concluded that the EDI does not simply measure concern with weight or dieting but rather indicates more disturbed attitudes. The EDI was also administered to a large number of normal weight women with bulimia but who had not experienced sufficient weight loss to meet a diagnosis of anorexia. Similar to the anorexic sample, the bulimic group scored significantly higher than normal on EDI subscales related to Bulimia, Drive for Thinness and Body Dissatisfaction. In an independent comparison of bulimic normal weight women with no history of anorexia, Garner et al. found that both groups scored similarly on all EDI subscales except Maturity Fears on which anorexics displayed greater psychopathology (Garner, Garfinkel and O'Shaughnessy 1985).

As with all self-report measures, there are caveats on the use of EDI in the diagnosis of eating disorders. Firstly, all self-report measures are vulnerable to distortion due to response style bias. In addition, the EDI (as with all self-report measures) could not be considered to represent an exhaustive sampling of the psychopathological characteristics of anorexia or bulimia, suggesting that no single questionnaire should be used as the sole means of screening for an eating disorder. Garner et al. point out that their test is most useful as a preliminary screening tool for eating disorders, which must be later confirmed by clinical interview.

For a fuller description of the content, scoring and validation of the EDI, see Chapter 2 and Appendix A.

Because of the difficulty in measuring the complexity of behaviours and attitudes associated with anorexia and bulimia via self-report measures, Cooper and Fairburn (1987) have devised a structured interview schedule (the Eating Disorders Examination, EDE) to assess the full range of the specific psychopathology of eating disorders, including these patients' concerns about their shape and weight. They say, "it was developed in order to overcome the limitations inherent in the use of self report instruments to measure this psychopathology." (p.4).

The interview consists of 30 scorable questions about a number of key anorexic and bulimic concerns and behaviour, eg. bingeing and purging frequencies, dieting behaviours, fears about fatness and feelings about being out of control of eating. It is a complex and detailed instrument, taking at least an hour to complete, and Cooper and Fairburn recommend that users undergo relevant training.

Subsequent studies, (Cooper, Cooper and Fairburn 1989; Rosen and Srebnik 1990; Rosen, Vara, Wendt and Leitenberg 1990; Wilson and Smith 1989) have examined the validity of the EDE and found that it is superior to other instruments designed to assess bulimic symptomatology.

Since its development, the EDE has become widely used as an assessment tool in a large number of studies (particularly treatment studies) of bulimia; eg. Coker, Vize, Wade, and Cooper 1993; Cooper and Steere 1995; Fairburn et al. 1986, 1991, 1993, 1995; Garner et al. 1993; Olmstead, Kaplan and Rockert 1994; Wilson et al. 1991; to name a few.

For a fuller description of the EDE, see Chapter 4, and Appendix H for a complete copy of the interview schedule.

With the increase in the research interest in eating disorders, there has been a corresponding interest in the objective measurement of these disorders. Early studies, especially treatment and epidemiological studies, devised their own questionnaires, which had limited validity and reliability. During the 1980s several tests were devised, which were empirically derived and validated. Some of the most frequently used tests are described above. With the proliferation of research into bn, it has become particularly important that reliable and valid measures be used. This is particularly important in treatment outcome studies, so that it is possible accurately to measure outcomes, and also that the results of different treatment studies can be compared.

1.6. SUMMARY.

Bulimia nervosa is an eating disorder that has captured the interest of both clinicians and researchers since it was first described by Russell in 1979. The most prominent features of the disorder are binge eating followed by purging which is seen as an attempt to counteract the effects of the binge. These behaviours are associated with a range of psychological problems, such as depression, low self-esteem, and chronic preoccupation with weight and shape and have been described in detail, notably by Russell (1979) and Fairburn and Cooper (1984).

There have been many hypotheses about causation with studies examining genetic and other family factors, abuse experiences and socio-cultural factors. Figure 1.1 indicates a number of factors that play a role in the development of an eating disorder.

The prevalence of bulimia has been reported at between 1% and 9% of the female population of Western societies and has been linked with those societies' valuing of thinness, especially for women. Prevalence studies indicate that bulimia occurs against a background of dieting and concern about weight, shape and perceived desirability to others. Study One reports a survey of this background, of dieting behaviours and

concern with weight and shape of a sample of young women in an age group most likely to develop bulimia nervosa. An attempt is also made to link attitudes to weight and shape with the possible development of such a disorder.

CHAPTER TWO

2.1 INTRODUCTION.

As specified in the DSMIII-R diagnostic criteria, bulimia nervosa consists of three “core” elements. (Wilson et al. 1991, p.575) These are, binge eating, the use of “extreme” weight control measures such as purging, and “persistent overconcern with shape and weight”. The latter two elements are also present to some extent in “normal” (i.e. non-bulimic) dieting behaviours. There is much research evidence indicating that dieting is common among Caucasian females, from adolescence through adulthood (Fairburn and Beglin 1990) and that dieting is strongly related to dissatisfaction with weight and shape among these females and is a much rarer phenomenon among young males, (Fallon and Rozin 1985). Although it is unclear what precisely “causes” bulimia, there is strong evidence that dieting behaviour as a result of body dissatisfaction is linked with the onset of bulimia. This is supported by research which relates dieting and bingeing and purging behaviour over time, studies of the correlation between body dissatisfaction and bulimic behaviours, and prevalence studies of body dissatisfaction and its links with “normal” and “extreme” dieting behaviours.

2.2 DIETING AS A PRECURSOR TO BULIMIA.

A number of studies have reported on the widespread body dissatisfaction among young Caucasian women, and the high numbers of these women who are trying to lose weight and change their body shape. (Abraham et al. 1983; Connors and Johnson 1987; Huenemann et al. 1966; Jakobovits et al. 1977). The most common method of trying to lose weight is dieting. Some researchers (Brownell 1991; Greene Achterberg Crumbaugh and Soper 1990; Patton 1988) would say that bulimia is not a separate disorder, but at the extreme end of a broad spectrum of

eating behaviours, ranging from normal eating to disordered eating, such as bulimia or anorexia.

In a survey of 620 women between 15 and 35 years, Fairburn and Cooper (1982) found that, although within a normal weight range, 63.2% of their sample wanted to weigh less than 85% of the matched population mean weight (MPMW) (Geigy 1962). In another survey of 369 women of the same ages as the first survey, Cooper and Fairburn (1983) found that although only 7% weighed over 115% MPMW, 60% reported persistently feeling overweight and their desired weight was 10% less than their MPMW, and on average, these women wanted to lose 11lbs, (4.95 kg) although they were not actually overweight. In the latter study, 20.9% reported bingeing, but only 1.9% met criteria for bulimia nervosa. Cooper and Fairburn noted that in almost every case, the women in their samples who later became bulimic were dieting prior to the onset of their bulimia.

The link between an unnecessary (unnecessary in the sense that these women were not overweight) desire for thinness and bulimia found by Cooper and Fairburn was also found in a study by Williamson, Killey, Davis, Ruggiero and Blouin (1985). Using the silhouette technique (whereby subjects manipulate the silhouettes of human figures to agree with how they view their real and ideal body shapes), they found that bulimic women aspired to a thinner ideal body size than non-bulimic controls,

Johnson, Lewis, Love, Lewis and Stuckey (1984) explored the dieting behaviours and attitudes of 1268 female high school students (14-18 years). The students were divided into bulimic and non-bulimic groups on the basis of DSM III criteria, plus a bingeing frequency of at least once weekly. The two groups did not differ in body weight, but the bulimic group was more likely to see itself as overweight.

Results indicated a significant relationship between dieting and bulimic behaviours. Of the bulimic group, 68% said that they were currently dieting compared to 35% of the non-bulimic group. There was a significant relationship between frequency of dieting and the endorsement of bulimic behaviours. For example, 33% of the bulimic group reported that they were always dieting, compared to 6% of the non-bulimic group; and 14% of the bulimic group reported having been on more than 10 diets in the past year, compared to 3% of the non-bulimic group.

Gray and Ford (1985) found similar results in a sample of 339 bulimics and normals, matched for age and weight. They found that the differences between the two groups were that the bulimics “felt more overweight, more afraid of getting fat...more likely to have failed at dieting and more likely to believe that a weight gain of five pounds would make them considerably less attractive.” (p.209).

In another study which demonstrated a link between dieting and later onset of eating disorders, Garfinkel et al. (1980) found that in their bulimic sample, bingeing and purging began, on average, 19.2 weeks after the onset of dieting.

Some researchers (Brownell 1991; Greene et al. 1990; Patton 1988) have suggested that bulimia is at one end of the dieting spectrum. “There is substantial evidence that fear of being fat is a powerful motivator. Anorexia nervosa and bulimia are the most pathological outcomes of excessive dieting, an enduring fear of being fat is part of these disorders” (Brownell 1991, p.5). Greene et al. described a “continuum” of less to more extreme dieting practices among college women who reported the regular use of extreme dieting practices, such as fasting, which are characteristic of bulimics. Thirty-eight percent of their non-bulimic dieters also reported binge eating. Patton (1988) surveyed 1010 London schoolgirls

on two occasions, 12 months apart. He found a significant percentage of “dieters” later proceeded to “caseness”, ie. a diagnosis of an eating disorder. He concluded, “dieting itself should be regarded as an aetiological factor, rather than simply a symptom of an eating disorder.” (p.583). Interestingly, he also found that actual weight was not related to onset of the eating disorder.

Killen et al. (1994) examined the level of weight preoccupation and other variables prospectively associated with age of onset of eating disorder symptoms over a three year interval in 939 females (mean age = 12.4). Of these, 3.6% experienced the onset of eating disorder symptoms in the interval. Only one factor, a measure of weight concerns (as measured by the EDI subtest scores of body dissatisfaction and drive for thinness) was significantly associated with onset of an eating disorder ($p < .001$). They concluded, “This finding appears consistent with both theoretical and clinical perspectives and represents one of the first prospective demonstrations of a linkage between weight and body shape concerns and later onset of eating disorder symptoms”. (p. 235).

Polivy and Herman (1985) built a strong case for the causative link between dieting and bingeing based on physiological mechanisms, but more importantly by cognitive control methods. They demonstrated an association between binge eating and dieting indicating that dieting usually preceded bingeing, chronologically. (Also found by Cooper and Fairburn 1983; Fairburn and Cooper 1982; Garfinkel et al., 1980; Johnson et al. 1984; Patton 1988; mentioned above). Polivy and Herman go on to propose that;

dieting causes bingeing by promoting the adoption of a cognitively regulated eating style, which is necessary if the physiological defence of body weight is to be overcome. The defence of body weight entails various metabolic adjustments that assist energy conservation, but the behavioural reaction of binge eating is best understood in cognitive, not physiological terms. By supplanting physiological regulatory controls with cognitive controls, dieting makes the dieter vulnerable to disinhibition and consequent overeating.” p.193.

Thus the studies listed above have found a strong temporal link between dieting behaviours and bulimia, and some authors, such as Polivy and Herman would argue that dieting is one “cause” of bulimia. Another part of this aetiological chain is body dissatisfaction, which causes women to diet in the first place. This dieting may not necessarily be warranted as the Fairburn and Cooper studies, quoted above, discovered.

2.3 BODY DISSATISFACTION AS A PRECURSOR TO DIETING.

The study by Williamson et al. (1985) indicated that bulimic women chose a thinner ideal body silhouette than controls, linking body dissatisfaction and dieting to the development of bulimia.

Using a similar technique, Fallon and Rozin (1985) found that women were significantly more likely than men to be dissatisfied with their shape, and choose significantly thinner ideal silhouettes. They gave 227 female and 245 male university students a set of nine figure drawings ranging from very thin to very fat. Subjects indicated their current figure, their ideal, and the figure they felt would be most attractive to the opposite sex. For men, the current, ideal and most attractive figures were almost identical. For women, the current figure was heavier than the most attractive figure, which was heavier than their ideal figure. They also found that, “Women think men like women thinner than men report they like.” (p.102) and that “women’s perceptions place pressure on them to lose weight.” (p.102).

Many subsequent investigations have replicated Fallon and Rozin's initial findings (Rozin and Fallon 1988; Thompson and Psaltis 1988; Tiggemann 1992.) In a recent study, Tiggemann (1996) gave 178 female subjects, mean age 23, a series of human silhouettes and asked them to choose; their ideal figure; the figure that that reflects "how you think you look"; the figure that "reflects how you feel most of the time"; the figure they thought was most preferred by men and the figure they thought was most preferred by women. This study found that women rated their ideal figure as significantly thinner than their current figure, and that they were more likely to feel fatter than they thought they were (the difference between affective and cognitive measures of body dissatisfaction). She concluded that feeling fat is different from being objectively overweight and that dietary restraint predicted feeling fat as opposed to thinking fat and hypothesised that, "The chain of events might be that thinking you are fat causes you to diet, but constant dieting and its well-documented lack of success is what causes people to feel fat"(p.24) and that that feeling fat is significantly related to frequency of dieting and bingeing but not successful dieting.

The link between dieting as a result of feeling fat as opposed to objective overweightness has been demonstrated in a number of studies. Huon (1994) surveyed an Australian sample of 440 girls whose mean age was 15.7 years. She found that for each age group, the mean desired weight was significantly less than the mean actual weight and that only 6.8% said they were not preoccupied with weight, while 34.8% described themselves as "very" preoccupied with weight. In addition, 25% said they were "often" dieting, and a significant proportion of these used various forms of purging to help them lose weight. Fifty two percent said they wanted to weigh at least seven kilos less than their current weight yet fewer than

6% of the sample were actually overweight. Some of the subjects (13.4%) said they were bingeing and also described themselves as “always” dieting, compared to 55.8% of those in the no binge category, who said they rarely or never dieted. Huon concluded “that the frequency of dieting and the discrepancy between the girls’ actual and ideal weights were significant predictors of their binge eating scores further emphasises the integral relationship between dieting to lose weight and binge eating. These data support a causal relationship.” (p.163).

Another study (Moore, 1988) also found significant discrepancies between actual weight, perceived weight and desire to lose weight. He surveyed 854 females between the ages of 12 and 23 years, and classified them as underweight if they were less than the 25th percentile of weight for height, and overweight if they were greater than the 75th percentile of weight for height. He found that:

- 4% believed they were underweight, whereas,
- 12% were actually underweight.
- 92% of the overweight girls were dissatisfied with their weight, while
- 53% of the normal weight girls were also dissatisfied with their weights.

Within the group that desired an “excessive” weight loss (35.5% of the total sample):

- 82% of this group were of normal weight.
- 16% of this group were already underweight.

These significant dissatisfactions with body weight were also associated with dissatisfaction with body shape.

- 44% of the normal weight girls did not like their body shape, particularly with thighs, abdomen, hips, waist and buttocks in descending order of dislike.
- 33% of underweight girls desired to decrease their thigh size.
- 38% had attempted a weight loss diet at some time and he found a “strong positive link” between the size of the desired weight loss and the use of “drastic” weight control measures such as purging, use of laxatives, stimulants and diuretics.

Thus the studies discussed above indicate that body dissatisfaction is widely prevalent among young women, from early adolescence onwards. Obviously not all the women on diets go on to develop an eating disorder, and some researchers (Brownell 1991; Greene et al. 1990; Patton 1988) have suggested that eating disordered persons represent the “extreme” end of the disordered eating spectrum. There are a number of possible factors which may predict a move from relatively normal dieting to disordered eating. These are; the discrepancy between actual weight and desired weight (Huon 1994; Williamson et al. 1985); the number of diets tried (and more importantly) failed, (Moore 1985); and “feeling” fat, as opposed to “thinking” fat or actual overweightness (Tiggemann 1996).

2.4 PREVALENCE OF “EXTREME” DIETING PRACTICES.

A number of studies have been conducted which indicate the prevalence of extreme dieting practices among young Caucasian women. Among adolescents, Huenemann, Shapiro, Hampton and Mitchell (1966) reported that 70% of high school girls in their study were unhappy with their weights and wanted to lose weight, Crowther, Post and Zaynor (1985) found that in a sample of 363 high school girls, 46% reported binge eating, of these, 19.9% binged weekly, while

4.2% binged daily. In addition, 11.2% vomited, 4.2% used laxatives and 36.4% used fasting as weight control measures. Similar results have been reported in other studies of adolescents (Gross and Rosen 1988; Kagan and Squires 1983).

Similar frequencies of use of “extreme” dieting practices have been found among adult women, (Greene et al. 1990; Halmi, Falk and Schwartz, 1981; Hart and Ollendick, 1985; Healy, Conroy and Walsh 1985; Nevo 1985; Pyle, Mitchell, Eckert, Halvorson, Neuman and Goff 1983). In a representative study, Cooper and Fairburn (1983) surveyed 369 adult women and found that 20.9% reported bingeing in the previous two months, 6.8% of these did so at least weekly while 0.5% did so on a daily basis. In addition, 2.9% reported vomiting during the previous two months and 0.5% reported vomiting weekly. Some women used other methods to control their weight, 7.3% used exercise and 4.9% used purgatives. This study indicated that relatively high percentages of women report bingeing. Regular or frequent bingeing, as well as regular and frequent purging, occur much less frequently. Cooper and Fairburn concluded that of this sample, only 1.9% fulfilled diagnostic criteria for bulimia nervosa.

2.5 SUMMARY.

The prevalence of bulimia has been estimated at 1.9% of the female population (Cooper and Fairburn 1983, and see also Chapter 1). Significant behavioural elements of bulimia include bingeing, extreme weight control measures and extreme weight concern, and it has been said to represent the extreme end of a range of dieting behaviours which are common among young Caucasian women. There is also evidence to suggest that dieting is a powerful precursor to bulimia (Polivy and Herman 1985), but not all women who diet develop bulimia. Research findings discussed above suggest that women most likely to develop bulimia have

the greatest discrepancy between their actual and preferred weight and shape (Huon, 1994); believe that men prefer thinner body shapes (Fallon and Rozin 1985); diet more frequently (Huon 1994); feel their eating behaviours are out of control (Crowther et al. 1985) and are more preoccupied with their weight and shape, as indicated by higher EDI scores of body dissatisfaction (BD) and drive for thinness (DT) (Killen et al. 1994). It may be possible, therefore, to identify young women in the community most at risk of developing an eating disorder by measuring their degree of body dissatisfaction, frequency of dieting and beliefs about the importance of weight and shape. Thus the first study was undertaken to establish the frequency of eating disorder in the local population, before treatment studies could be undertaken in the same population.

2.6 AIMS OF FIRST STUDY:

1. To survey the dieting behaviours and beliefs of a normal group of females; “normal” in that they were not known to have an eating problem.
2. To assess the frequency of potential eating disorder in a normal population of women and girls, using a standardised assessment technique.
3. To see if there is a correlation between “diagnosis” and frequency of dieting, degree of dissatisfaction with weight and shape, and use of “extreme” dieting practices.

2.7 METHOD-PARTICIPANTS.

Participants for the survey were recruited from one public high school, one public college, psychology classes from the two local universities and from a local TAFE with the following considerations in mind:

- a.) They provided a representative and random sample of students of different ages, economic status and academic standard.

b.) They were willing to give students time to fill out a questionnaire during class.

All class participants completed the questionnaire. The questionnaire (which took approximately 20 minutes to complete) was designed by the author to elicit information about their weight, height, weight fluctuations, eating and dieting habits and beliefs about weight and shape.

All academic institutions were in the Canberra area.

All questionnaires were distributed during class time. The author explained to each group that the purpose of the study was to survey respondents' eating habits and attitudes to food, weight and shape. Participants were asked to fill out the questionnaire anonymously and return in an envelope to either the course instructor or the author, who was generally present during the time the questionnaires were being completed. All participants were entered into the study if they were female, were between the ages of 13 and 40 years, and had completed the questionnaire. Total number was 399.

The above age group was chosen in order to best represent the groups in which an eating disorder is most likely to appear (Cooper and Fairburn 1983; Crowther et al. 1985; Greene et al. 1990; Gross and Rosen 1988; Halmi et al. 1981; Hart and Ollendick 1985; Healy et al. 1985; Huenemann et al. 1966; Kagan and Squires 1983; Nevo 1985 and Pyle et al. 1983).

2.8 THE QUESTIONNAIRE:

The questionnaire, devised by the author, was in two parts, with a total of 91 questions. It was designed to obtain the following information.

Part 1. As the questionnaire was a screening instrument devised for the current study and not a true psychometric test, reliability and validity measures were not appropriate in that situation.

a.) Current weight and height so that a body mass index, or BMI could be calculated,

The BMI or Quetelet Index was devised in 1871 by a Belgian astronomer Dr. Quetelet to, obtain and index of each subject's current nutritional status. for diagnosing obesity. It has subsequently been used as an aid in diagnosing eating disorder, particularly anorexia nervosa, where, according to DSMIV, (American Psychiatric Association 1995) one of the diagnostic criteria is a loss of 25% of original body mass. One of the problems in research into eating disorder has been deciding the significance of weight loss as a diagnostic indicator. Early research referred to standard body weight tables (Garrow 1981) as an indication of undernutrition, with some researchers following Russell's (1979) criteria, including a fall of body weight to below 80% of standard body weight. However, this does not take account of possible pre-existing obesity on the part of some patients. Recent research uses the BMI as an index of nutritional status, following the lead of Abraham and LLewellyn-Jones (1987), who applied it to a group of 23 anorexic patients. Beumont, Al-Alami, and Touyz (1988), also recommended its use as a guide to nutritional status in patients with suspected eating disorder. A BMI is calculated in the following way, weight, (in kilograms) divided by height (in metres) squared. Abraham and LLewellyn-Jones (1987) provided the following BMI indicators.

< 15 = emaciated
15-19= underweight
20-25= normal
26-30= overweight
31-40= obese
>40 = gross obesity

- b.) Previous (adult) highest and lowest weights. These questions were asked to ascertain degree of weight fluctuations, and together with other questions, the possibility of dieting.
- c.) Ideal weight. When compared with current weight, the discrepancy between these two figures could provide an indication of body dissatisfaction, as suggested by Huon's (1994) research.
- d.) Eating/dieting behaviours, such as counting calories, number of diets tried in the past and perceived success of dieting, as suggested by research which links eating disorders to amount of dieting (Johnson et al. 1984).
- e.) Perceived desirability of slimness, for oneself, and for others, as suggested by research of Fallon and Rozin (1985); Williamson et al. (1985).
- f.) Dissatisfaction with body shape, as suggested by research of Moore (1988).
- g.) Eating for reasons other than to satisfy hunger, as suggested by Polivy and Herman (1985).

Part 2 of the questionnaire. This consisted of the Eating Disorders Inventory (EDI) (Garner, Olmstead and Polivy 1983). It was added to assess the frequency of potential eating disorder in the sample. The EDI was used because of its proven utility as a self-report assessment of bulimia and anorexia (Agras et al. 1989; Fairburn et al. 1986, 1991, 1993, 1995; Freeman et al. 1988; Garner et al. 1993; Griffith et al. 1996; Kirkley et al. 1985; Olmstead et al. 1994; Thackwray et al. 1993; Wolf and Crowther 1992) and also because some of the scales (Bulimia, Drive for thinness and Body dissatisfaction) have been found to differentiate reliably between a group of bulimic patients and psychiatric controls (Cooper et al. 1985; Hurley, Palmer and Stretch 1990).

In addition, Killen et al. (1994) found that the Drive for Thinness, Body Dissatisfaction, Ineffectiveness, Interpersonal Distrust, Interoceptive Awareness Bulimia and Perfectionism scales of the EDI were, separately and in combination, significantly associated with the onset of an eating disorder over a three year period in adolescent girls (mean age, 12.4 years).

The EDI, developed by Garner et al. in 1983, is a 64-item self-report questionnaire designed for the assessment of psychological and behavioural traits common in anorexia nervosa and bulimia nervosa. It consists of eight subscales. Items for the subscales were generated by clinicians familiar with the research literature on eating disorder and who had experience treating patients with eating disorders. The subscales are (as described in the manual):

- **DRIVE FOR THINNESS.**

Indicating excessive concern with dieting, preoccupation with weight and entrenchment in an extreme pursuit of thinness. Bruch (1962) has described this as an important feature of anorexia nervosa. Items reflect both a strong wish to lose weight as well as a fear of weight gain.

- **BULIMIA:**

Indicating the tendency towards episodes of uncontrollable overeating (bingeing) and may be followed by the impulse to engage in self-induced vomiting. The presence or absence of bingeing and purging differentiates between anorexia nervosa and bulimia nervosa (Beumont et al. 1976; Casper et al. 1980; Garfinkel, Moldofsky, and Garner 1980; Russell 1979). It has also been described in women with no prior history of anorexia nervosa (Pyle et al. 1981; Russell 1979). Some

studies (Halmi et al. 1981; Hawkins and Clement 1980), have found that bulimia as described by the EDI to be relatively common among college females.

- **BODY DISSATISFACTION:**

Reflects the belief that specific parts of the body associated with shape change or increased “fatness” at puberty are too large, e.g. hips, thighs, buttocks. Body dissatisfaction has been found to be related to other body image disturbances which have been considered a basic element of both anorexia (Garner and Garfinkel 1981) and bulimia (Moore 1988).

- **INEFFECTIVENESS:**

Described as assessing feelings of general inadequacy, worthlessness and the feeling of not being in control of one’s life. This feature has been described by some as the fundamental disturbance in anorexia nervosa (Bruch 1973) and includes negative self-evaluation (Garner, Garfinkel and Bemis 1982).

- **PERFECTIONISM:**

Indicating excessive personal expectations of superior achievement. The perfectionism in anorexia nervosa has been described as part of a “dichotomous” thinking style (Garner et al. 1982). The families in which anorexia nervosa occurs have been described as highly achievement oriented (Bruch 1973).

- **INTERPERSONAL DISTRUST:**

Reflecting a sense of alienation and a reluctance to form close relationships and has been identified as important in the development and maintenance of anorexia nervosa (Strober 1980). It is described as different from paranoid thinking and relates to an inability to feel comfortable expressing emotions towards others.

- INTEROCEPTIVE AWARENESS:

Described as reflecting one's lack of confidence in recognising and accurately identifying emotions or bodily sensations of hunger or satiety. Bruch (1962) has described this problem as fundamental to anorexia nervosa.

- MATURITY FEARS:

Described as measuring a wish to retreat to the security of preadolescent years because of the (perceived) overwhelming demands of adulthood. Crisp (1967) has suggested that the central psychopathology of anorexia nervosa is an avoidance of psychological maturity through starvation and the maintenance of an immature body shape.

Subjects respond to each item along a six-point forced-choice scale, ranging from "never" to "always" and the authors' scoring was followed.

For example, question 1, from the Drive for Thinness scale, "I eat sweets or carbohydrates without feeling nervous". Subjects must rate whether this and other questions apply, "always", "usually", "often", "sometimes", "rarely" or "never".

The EDI is highly valid and reliable. To assess validity and reliability, three studies were conducted. The total sample of the three studies consisted of 155 patients (53 restrictors and 102 bulimics) compared with 770 female college students as controls. The final 64 items were selected from the original pool of 146 on the basis of their ability reliably to distinguish between eating disordered patients and controls, and because of their high correlation with their relevant subscale.

Reliability coefficients (Standardised Cronbach's alphas) for each subscale were assessed at between .72 and .92 for the control group, and .83 and .93 for the

eating disordered group. In addition, individual items were only retained in each subscale if they correlated more than .40 with their subscale.

Criterion related validity was assessed by comparing EDI scores of some of the original clinical sample ($N = 49$) with clinicians' assessments of them.

Correlations between these two were from .43 for Maturity Fears to .68 for Ineffectiveness. All correlations were significant at .001 level. EDI scores can also discriminate between anorexics and bulimics in the subscales of Drive for Thinness, Bulimia, Body Dissatisfaction, Ineffectiveness and Interceptive Awareness (p for all $< .03$) and between current anorexics, recovered anorexics and controls. The recovered group scored lower than the currently anorexic group ($p < .001$) on each subscale and was not significantly higher ($p > .05$) than the control group on any subscale (Garner et al. 1983).

A copy of the questionnaire, incorporating the EDI, is at Appendix A1.

2.9 RESULTS

The first aim of the study was to survey dieting behaviours and beliefs of a normal population of women. Table 2.1 indicates the body size characteristics of the present sample

Table 2.1 Body Size Characteristics of Sample by Age

Age	Height (metres)		Weight (kilos)		BMI	
	mean	SD	mean	SD	mean	SD
<15 yrs N=70	1.59	0.09	50.00	5.92	19.75	2.89
15-19 yrs N=190	1.67	0.07	57.20	8.17	20.92	2.64
20-24 yrs N=72	1.64	0.09	58.80	8.99	22.02	3.87
25-29 yrs N=25	1.64	0.08	61.00	14.70	22.51	4.59
30+ yrs N=37	1.61	0.05	67.40	14.80	26.09	5.36

The above weight distributions appear to be slightly lower, but comparable to national Australian figures¹. National figures indicate that the mean weight for 12-15 year olds is 54.5 kilos, for 16-18 year olds, 61.4 kilos, for 19-24 year olds, 63.4 kilos, and 25-44 year olds, 67.3 kilos.

Table 2.1 indicates that, at each age (except for the 30+ group) the mean BMI was within the normal range. Table 2.2 indicates the range of BMIs for each age group. This indicates different distributions of weights for different age groups. The underweight and emaciated categories were made up of the younger respondents while the overweight/obese categories consisted of people over 20 years. As one would expect, the greatest proportion of respondents in all age groups fell within the normal BMI category. As in Table 2.1, the present population appears to be slightly lighter in weight than the national average. National figures indicate that for the 19-24 year olds, 5.4% are underweight (compared with 14.71% in the present sample); 64.6% are "acceptable" (compared with 73.53%); 17.4% are

overweight and 8.6% obese (compared with 7.35% and 4.41%). The same is true for the older age groups in the present sample, ie, the mean weights were slightly less than the national average.

It should be noted that BMI figures are only reliable after the age of 18 years because of different patterns of fat and muscle deposition and different rates of growth up to that age. According to the growth charts for girls up to the age of 18 years, the mean heights and weights in Table 2.1 for the under 15 group and the 15 to 19 year old group are at the 50th centiles of their age category. The appropriate growth chart can be seen in Appendix A2.

Table 2.2 BMI Categories by Age

	Emaciated	Underweight	Normal	Overweight	Obese
	(%)	(%)	(%)	(%)	(%)
<15 yrs N=70	1.96	39.22	56.86	1.96	0
15-19 yrs N=190	0.68	22.42	68.48	8.48	0
20-24 yrs N=72	0	14.71	73.53	7.35	4.41
25-29 yrs N=25	0	16.67	70.83	8.33	4.17
30+ yrs N=37	0	2.78	50.00	27.78	19.44

a.)Dissatisfaction with weight.

Previous research (Cooper and Fairburn 1983; Fairburn and Cooper 1984; Huon 1994; Moore 1988) indicates that dissatisfaction with weight is common among populations similar to the above sample. Tables 2.1 and 2.2 indicate that essentially, most of the sample had a normal BMI. To indicate the degree of dissatisfaction with weight, respondents were asked if they had tried to lose weight, dieted frequently or “regularly” counted calories. They were also asked to

¹ Figures obtained from the Risk Factor Prevalence Study, Survey no.3, 1989, pp37-38.

indicate their “ideal” weight. Table 2.3 distinguishes between a “need” to lose weight, ie. those respondents who were either overweight or obese compared with those who expressed a “desire” to lose weight, either by frequent dieting or calorie-counting, or who indicated that they had lost weight in the past.

Table 2.3 “Need” Vs “Desire” to Lose Weight (%)

Age	<15	15-19	20-24	25-29	30+
Need	1.96	8.48	11.76	12.50	47.22
Lost weight	37.00	47.25	47.80	55.55	60.00
Dieting	19.00	20.56	18.50	17.80	19.05

As Table 2.3 indicates there was a discrepancy between the percentages of respondents who “needed” to lose weight because they were overweight, and those who wished to or had tried to lose weight. The latter was ascertained by two questions; “Have there been times in the past when you have voluntarily lost significant amounts of weight?” and “I go on lots of diets”. This result is similar to that obtained by Huon (1994) although not as strong. In her sample (mean age 15.7 years) 52% wanted to weigh at least 7 kilos less than their current weights, while less than 6% of her sample were actually overweight. In the present sample 47.25% of the subjects in the 15-19 age range had dieted in the past and wanted to lose, on average, 6.06 kilos (see Table 2.4) while only 8.4% were actually overweight.

Table 2.4 Differences Between Present and Ideal Weights by Age

Age	Present Weight (kilos)		Ideal Weight (kilos)		Present-Ideal (kilos)	
	Mean	SD	Mean	SD	Mean	SD
<15 yrs N=70	50.00	5.92	47.17	7.69	2.53	4.67
15-19 yrs N=190	57.20	8.17	53.43	6.35	6.06	6.10
20-24 yrs N=72	68.80	8.99	54.98	5.29	3.82	5.58
25-29 yrs N=25	61.00	14.70	55.44	7.51	5.33	10.29
30+ yrs N=37	67.40	14.80	58.53	6.90	9.18	10.02

The above table indicates that at all ages, mean ideal weights were less than mean actual weights, even though, as Table 2.2 indicates, there were few overweight respondents in the younger two age groups. Even the under 15 group wished, on average, to be at least 2 kilos lighter. These results are consistent with earlier studies (Abraham et al. 1983; Huon 1994; Killen et al. 1994; Moore 1984) that indicate that large numbers of girls and women are dissatisfied with their weight and wish to be lighter than they are, even though objectively, they are not overweight.

b) Dissatisfaction with shape.

This was assessed by five questions, asking subjects about how satisfied or dissatisfied they are with those parts of the body, such as stomach, hips and thighs that are usually the sites of greatest body dissatisfaction (Moore 1988).

Table 2.5 Expressed Dissatisfaction with Shape (%)

Age	<15	15-19	20-24	25-29	30+
Body shape	47.14	57.89	48.61	68.00	37.83
Stomach	40.00	53.68	45.83	44.00	56.75
Thighs	51.62	72.10	58.33	92.00	56.75
Buttocks	61.42	68.42	63.88	92.00	54.05
Hips	42.85	35.78	16.66	76.00	51.35

The above body shape questions indicate that at least half the respondents, in every age group expressed dissatisfaction with their body shape. This is consistent with previous research findings, such as Moore (1988) who reported that 40% of his sample of normal weight adolescent girls disliked their body shape, particularly hips, waist, abdomen, buttocks and thighs.

c) Eating and dieting behaviours.

A number of questions assessed the spectrum of eating and dieting practices.

Research suggests that dieting is common in the age group of the present sample (Huenemann et al., 1966) and that those more likely to develop an eating disorder such as bulimia are likely to diet more frequently and use more “extreme” weight loss techniques such as fasting (Cooper and Fairburn, 1987) or purging and exercise (Crowther et al., 1985).

In addition, subjects were asked if they believed their eating was disordered.

Table 2.6 Frequency and Type of Dieting Techniques (%)

Age	<15	15-19	20-24	25-29	30+
Frequent					
Dieting	19.00	20.56	18.50	17.80	19.05
Calorie					
Counting	6.02	8.90	15.00	17.80	3.00
Exercise/					
Purging	25.71	32.10	26.38	24.00	21.62
Disorder	22.00	26.00	21.70	29.62	50.01

The above table indicates that the prevalence of “frequent” dieting (respondents’ own definition) is similar for all age groups in the sample. These results are lower, but consistent with previous figures, eg. Huon (1994) found that 25% of her sample of 15 year olds described themselves as “often” dieting, and Johnson et al. (1984) found that 35% of their non-bulimic subjects (14-18 years) were currently dieting.

Calorie-counting is one form of dieting, and was relatively less used by all respondents

Exercise and/or purging appeared to be more frequently used as a weight-control mechanism for all ages. (The relevant question asks if respondents try to counterbalance overeating with exercise, diuretics, laxatives or vomiting). As the question is a general one, it was not possible to ascertain which particular method was used by respondents. The present results are consistent with those of other studies which have examined purging rates, eg. Crowther et al. (1985) found that 11.2% of their high school sample (about the same ages as the present two youngest age groups) reported vomiting to lose weight. Another 4.2% of their sample reported using laxatives. Huon (1994) found that 36.4% of her population

reported using exercise, 11.4% used laxatives and 6.2% vomited to control weight. The rates for adult women appeared to be slightly lower. Cooper and Fairburn (1983) found that 4.9% used laxatives, 2.9% vomited, and 7.3% exercised to lose weight in a two-month time span.

Table 2.6 also indicates that at each age level, a quarter of respondents believed that their eating was disordered. This percentage increased to 50% for the 30+ age group. These figures reflect respondents' belief that they are unable to control their eating. For the younger respondents, this may be a significant prognostic factor in the later development of a full-blown eating disorder. Abraham (1989) found that although a prevalence of about 2% for bulimia could be found, this figure did not represent the number of women who wanted help with weight control.

Approximately 40% of women between 18 and 40 years of age felt they "had some difficulty controlling their body weight." Approximately 20% felt they had "disordered eating" and many were using such methods of weight control as strict dieting (25%), self-induced vomiting (3%) and laxative abuse (5%).

d) Attitudes towards weight and shape.

Three questions tapped subjects' beliefs about the desirability of slimness, such as the belief that fatness reflected a lack of willpower, that men preferred slim women and that their current partner preferred slim women.

Table 2.7 Beliefs about slimness (% answering yes)

Age	<15	15-19	20-24	25-30	30+
Willpower	73.01	42.21	47.23	57.05	40.60
Male pref.	84.00	85.10	78.81	77.24	65.63
Partner pref.	24.28	43.68	44.44	48.00	27.02

Questions listed in Table 2.7 were designed to tap subjects' perceptions about the desirability of slimness. Large numbers (and in some cases, the majority) of women endorsed the view that slimness is more valued by men, and that fatness is an indication of weakness. Results in the above three tables support results obtained by Fallon and Rozin (1985) and Tiggemann (1996) who found that women persistently chose a thinner ideal shape and believed that men preferred women thinner than the men themselves reported preferring.

e) Eating and emotions.

Polivy and Herman (1985) suggested that dieting and bingeing are strongly temporally linked and that dieting should be seen as a possible causative factor in the development of bingeing and possibly bulimia nervosa. This is because dieting involves a psychological rather than a physical control of eating behaviour. A risk of this psychological control is that a number of situations could set up disinhibition of this control, resulting in bingeing. Possible disinhibitors could be a range of negative emotions. Fairburn, (1985) noted that binge eating provided distraction from unpleasant thoughts, short-term relief from dysphoric moods, and the occupying of spare time. Three questions were designed to see if subjects were eating for reasons other than hunger.

Table 2.8 Frequency of "psychological" eating (% answering yes)

Age	<15	15-19	20-24	25-29	30+
Boredom	38.57	46.31	61.38	52.00	40.54
Depression	37.14	44.73	38.88	36.00	51.35
Tiredness	11.42	11.05	23.61	36.00	37.83

Table 2.8 indicates that eating for reasons other than hunger is common among all age groups.

2.10 DISCUSSION OF RESULTS (a).

The first aim of the present study was to survey dieting habits and beliefs of a group of “normal” (not identified as eating disordered females) in an age range which is most likely to develop an eating disorder. The present sample did not differ significantly from the national average in terms of weight and BMI.

The most striking finding was the high degree of dissatisfaction women and teenage girls in this sample had with their weights. This was measured in a number of ways. Firstly, by the difference between present and ideal weights. As tables 2.3 and 2.5 indicated a large proportion of subjects chose ideal weights less than current weights, and there were large differences between the desire and need to lose weight at all ages.

Secondly, substantial numbers of subjects in all age groups expressed dissatisfaction with their weight and shape.

Other findings were that large numbers of subjects reported frequent dieting, and to a lesser extent, exercising or purging to help them lose weight.

These behaviours occurred in the context of the beliefs that equated slimness with self-control, and that others, particularly men, preferred women who were slimmer.

The results of the present study are in accordance with results obtained by similar studies reported earlier in this chapter, and are important in that they examine behaviours which are important in the later development of an eating disorder, such as bulimia.

The second aim of the study was to identify individual respondents who could be “diagnosed” as having an eating disorder, using a standardised assessment

instrument. In the present study, the EDI was used. This scale does not have a cut-off point to differentiate between eating disordered and non-eating disordered respondents. Each scale represents a continuum, with different profiles for eating disordered and non-eating disordered groups. To “diagnose”² possible eating disorder, each respondent’s profile of scores was plotted against the eating disorder profile provided with the EDI testing kit. Shaded areas on the profile form are 99% confidence intervals for both the eating disordered and female comparison groups (Garner and Olmsted, 1984) and are based on normative samples of 155 anorexia nervosa patients and 271 female comparison subjects. For a copy of the profile, see Appendix A3. It should be noted that the anorexic profile incorporates both restricter and bulimic types. Subsequent normative research (Garner and Olmsted, 1986) has indicated that normal weight bulimics, with no history of anorexia, scored in the same range or higher (in Bulimia and Body Dissatisfaction) than the original sample in all subtests, except for Interpersonal Distrust. Therefore, in the present study, to be “diagnosed” as eating disordered, possibly bulimic, respondents had to have a profile within the diagnostic range, with particular attention to scores in Bulimia and Body Dissatisfaction, and not be significantly underweight (ie, not emaciated according to the BMI scales for adults, and not lower than the 25th centile for those under 18 years.) range. Table 2.9 indicates mean EDI subtest scores for the present sample compared with those of the normative eating disordered and comparison groups.

² The term “diagnose” is used extremely loosely, as it is not possible to diagnose a person with an eating disorder on the basis of a self-report instrument alone. Garner and Olmsted (1984)

Table 2.9 Mean EDI subtest scores

EDI	DT		B		BD		IN		P		ID		IA		MF
	m	SD	m	SD	m	SD	m	SD	m	SD	m	SD	m	SD	MF SD
Restricting anorexics															
(n=53)*	11.71	7.0	2.8	3.5	13.4	7.3	9.9	8.2	7.7	5.1	6.2	4.8	9.9	6.5	5.7 5.5
Bulimic anorexics															
(n=102)*	14.9	5.5	10.9	5.6	16.7	8	13.3	8.6	9.1	5.4	6.6	5	12.2	7.2	5.6 5.9
Female comparison															
18-25yr (n=271)*	5.1	5.5	1.7	3.1	9.7	8.1	2.3	3.8	6.4	4.3	2.4	3.0	2.3	3.6	2.2 2.5
Bulimics, no Hx															
anorexia															
m.age=22.6(n=92)#	16.0	4.2	11.6	5.3	18.8	7.3	10.9	7.0	9.0	5.0	4.7	4.3	4.3	6.3	3.6 3.9
14-18yrs(n=231)**	7.1	5.9	2.2	2.8	12.1	8.7	4.2	4.9	4.9	4.1	3.4	3.6	5.5	5.4	3.8 3.1
<15 yrs (n=70)	5.1	4.7	3.5	4.1	10.0	7.5	4.6	4.7	4.6	5.9	3.6	3.3	6.4	6.4	6.7 6.3
15-19 yrs(n=190)	5.3	5.3	2.1	3.7	14.0	8.1	4.5	4.9	4.9	4.3	2.5	3.0	3.8	4.5	3.3 3.2
20-24 yrs(n=72)	4.3	5.1	1.3	2.4	12.8	8.6	3.0	5.2	4.5	3.6	2.2	7.7	2.9	4.2	2.8 4.2
25-29 yrs(n=25)	2.7	3.7	1.3	2.5	11.0	8.4	0.6	1.0	2.9	3.7	1.2	2.2	1.3	2.5	1.5 2.6
30+yrs(n=37)	3.6	4.6	1.9	4.1	13.0	8.7	1.8	3.2	5.9	3.5	1.4	2.0	1.9	4.5	1.3 2.9

Subtest scores for the present sample (particularly for the eldest three age groups) are similar to those of the female comparison group, and therefore confirm that the present sample had EDI scores within the average range. Similarly for the two youngest groups, whose mean subtest scores were similar to those obtained by Shore and Porter's (1990) normative group of 231 14 to 18 year olds.

Following the procedure outlined above, a small number of respondents were "diagnosed" as possibly eating disordered. These are indicated below.

Table 2.10 Tentative Diagnosis of Eating Disorder on the Basis of EDI Scores

Age	No.	%
<15yrs (N=70)	6	8.5
15-19 yrs (N=190)	11	5.7
20-24 yrs (N=72)	6	8.3
25-29 yrs (N=25)	0	0
30+ yrs (N=37)	2	5.4

As can be seen from the above table, the number of respondents tentatively "diagnosed" as eating disordered was small for each age group. This result is consistent with previous research on the prevalence of anorexia and bulimia. This indicates that although a number of young women use more or less extreme dieting methods, a much lower percentage will actually fit diagnostic criteria for the full syndrome of bulimia nervosa (Cooper and Fairburn, 1983; Patton, 1988).

However, the present figures are larger than the typically reported prevalence of bulimia of 1.9%. This is most probably because of the use of a self-report instrument, such as the EDI is a relatively blunt discriminator of eating disordered respondents from non-eating disordered respondents. Previous research (Wilson and Smith, 1989) has indicated that while the EDI is able to distinguish bulimics from non-dieting controls, it is less sensitive in distinguishing between bulimics

and highly restrained controls. A more accurate discriminator would possibly be a structured diagnostic interview, such as the Eating Disorders Examination (Cooper and Fairburn, 1987; Cooper, Cooper and Fairburn, 1989; Wilson and Smith, 1989). However, this was beyond the scope of the present study.

2.11 DISCUSSION OF RESULTS (b).

The second aim of the study was to assess the frequency of possible eating disorder in a community based sample of women. This was done by asking them about their weight, eating and dieting habits, and by matching individual profiles to an eating disordered profile, using a reliable self-report measure. Table 2.10 indicates the relevant percentages for each age group. Because of the structure and scoring of the EDI, it was not possible to distinguish between anorexics or bulimics unless their weights were very low. In the present sample 1.96% of the under 15 age group and 0.68% of the 15 to 19 year group were emaciated, and could possibly be diagnosed as restricting anorexics. The remainder of the “diagnosed” group were within normal weight range, or slightly underweight.

The two respondents over age 30 who obtained high EDI scores were obese and therefore excluded from further calculation, because, while they did appear to have an eating problem, they did not fit into the anorexic or bulimic categories.

Thus in the present study respondents could only be “diagnosed” as eating disordered, possibly bulimic. These percentages are higher than the 1.9% of women met strict diagnostic criteria for bulimia nervosa (Cooper and Fairburn, 1983) but less than the figure of 16% of high school girls reporting bulimic behaviours Johnson et al. (1984).

The third aim of the study was to see if there was a link between tentative diagnosis of an eating disorder and dieting habits and attitudes to weight and shape. This aim was suggested by previous research which has found a significant correlation between a diagnosis of bulimia and frequency of dieting (Johnson et al., 1984) and studies which have found that the development of bulimia typically follows dieting (Cooper and Fairburn 1983; Garfinkel et al., 1980), that bulimia represents an extreme end of the dieting spectrum (Brownell, 1991; Greene et al., 1990; Patton, 1988), that bulimics are more likely to have elevated scores on the Body Dissatisfaction scale of the EDI (Garner and Olmsted, 1986), and that bulimic behaviours distract sufferers from unpleasant emotions (Fairburn, 1985).

A series of chi-squares was performed to measure the relationship between diagnosis and responses to the questionnaire pertaining to dissatisfaction with weight, shape, frequency of dieting, psychological eating and beliefs about the importance of weight and shape.

a.) The relationship between “diagnosis” and body dissatisfaction.

This series of questions was asked because previous research (Williamson et al., 1985) has suggested that bulimic women choose thinner body silhouettes and express greater dissatisfaction with their body shapes than non-bulimics (Herzog, 1982). Therefore, a series of chi-squares was applied to the relationship between diagnosis and dissatisfaction with body shape. Each question, relating to general body shape, thighs, hips, buttocks and stomach, was suggested by research by Moore (1988) which indicated that these were the sites of greatest bodily dissatisfaction.

A chi-square test was applied to the relationship between diagnosis and dissatisfaction with stomach specifically. This was found to be statistically significant, chi-square (1, $N=382^3$) = 8.13, $p<.01$. Thus, women diagnosed as bulimic were more likely than non-bulimic women to be dissatisfied with their stomach. The observed frequencies for the four cells can be found in Table 2.11.

Table 2.11 Relationship between diagnosis and dissatisfaction with shape-stomach.

Response	Category	
	Normal	Bulimic
Yes	174	18
No	185	5

Another chi-square test was applied to the relationship between diagnosis and dissatisfaction with thighs. This relationship was found to be significant, chi-square (1, $N=383$) = 5.78, $p<.05$. As with the previous result, bulimics were significantly more likely to be dissatisfied with the size of their thighs than normals, although the relationship was not as strong as for stomach dissatisfaction. Observed frequencies for the four cells are illustrated in Table 2.12.

Table 2.12 Relationship between diagnosis and dissatisfaction with shape-thighs.

Response	Category	
	Normal	Bulimic
Yes	231	20
No	129	3

Another chi-square test was applied to the relationship between diagnosis and satisfaction with general body shape. (Note that for this question a negative response indicates dissatisfaction rather than a positive response, as was the case for the two previous questions.) For this question the chi-square was significant,

³ Total Ns for each chi-square vary because not all respondents answered all of the questions.

chi-square (1, N=382) =22.613, $p<.0001$. The nature of the relationship was such that bulimics were much more likely than non-bulimics to express dissatisfaction with their general body shape. As table 2.13 indicates, about half the non-bulimic respondents were dissatisfied with their shape, whereas for the bulimic group, all but one were dissatisfied. Observed frequencies are represented below.

Table 2.13. Relationship between diagnosis and satisfaction with general body shape

	Category	
Response	Normal	Bulimic
Yes	180	1
No	179	22

A chi-square test was applied to the relationship between diagnosis and respondents' satisfaction with the shape of their buttocks. As for the previous question, this question is also expressed positively. The relationship between the two variables was also found to be statistically significant, chi-square (1, N=379) =4.553, $p<.05$. As Table 2.14 indicates, two thirds of the non-bulimic group expressed dissatisfaction with the shape of their buttocks, however, bulimics were much more likely to express dissatisfaction with their buttocks than the non-bulimic group. The observed frequencies for the four cells can be seen below.

Table 2.14 Relationship between diagnosis and satisfaction with shape-buttocks

	Category	
Response	Normal	Bulimic
Yes	117	3
No	239	20

A chi-square test was applied to the relationship between diagnosis and expressed dissatisfaction with size of hips. This was found to be significant, chi-square (1, N=382) =14.79, $p<.001$. As Table 2.15 indicates, 50% of the normals expressed

dissatisfaction with the size of their hips. However, a much higher relative percentage of bulimics were dissatisfied, as revealed by the significant chi-square result. The observed frequencies for the four cells can be found below.

Table 2.15 Relationship between diagnosis and dissatisfaction with shape-hips

Response	Category	
	Normal	Bulimic
Yes	180	18
No	180	4

Thus, as Tables 2.11-2.15 indicate, many respondents expressed dissatisfaction with their general body shape and their hips, buttocks, thighs and stomachs, as suggested by Moore's (1988) research. However, as all of the significant chi-square results indicated, bulimics were much more likely than non-bulimics to express dissatisfaction with their shape. This confirms results obtained by Herzog (1982) and Post and Crowther (1985) who found that bulimic females experienced significantly greater body dissatisfaction than non-bulimics.

c.) The relationship between diagnosis and dissatisfaction with weight and dieting behaviours.

A chi-square test was applied to the relationship between diagnosis and significant voluntary weight loss and found to be statistically significant. Chi-square (1, $N=373$) = 5.20, $p<.05$. Thus respondents diagnosed as bulimic are more likely than non-bulimics to have lost what they believe is a significant amount of weight in the past. The observed frequencies can be seen in Table 2.16.

Table 2.16 Relationship between diagnosis and significant weight loss

	Category	
Response	Normal	Bulimic
Yes	156	15
No	194	8

A chi-square test was applied to the relationship between diagnosis and frequency of counting calories among respondents. This result was found to be statistically significant, chi-square (1, $N=380$) = 11.32, $p<.001$, indicating that those diagnosed as bulimic were more likely to count calories than normals. The observed frequencies for the four cells are indicated in Table 2.17.

Table 2.17 Relationship between diagnosis and calorie counting

	Category	
Response	Normal	Bulimic
Yes	27	15
No	330	8

A chi-square test was applied to the relationship between diagnosis and frequent dieting. This chi-square result was found to be statistically significant. Chi-square(1, $N= 377$) = 10.90, $p<.001$. Thus, as with calorie-counting, bulimics were more likely to report frequent dieting than non-bulimics. This result is consistent with those obtained by Johnson et al. (1984) who found that bulimics report more frequent dieting than normals. The observed frequencies for the four cells can be found in Table 2.18

Table 2.18 Relationship between diagnosis and frequent dieting

Response	Normal	Bulimic
Yes	63	12
No	291	11

A chi-square test was applied to the relationship between diagnosis and the respondent's belief that she had an eating problem and found to be statistically

significant: Chi-square (1, $N=371$) = 9.18, $p < .01$. This result indicates that bulimics are more likely to believe that they have an eating problem than non-bulimics. The observed frequencies for the four cells can be found in Table 2.19.

Table 2.19 Relationship between diagnosis and believed presence of eating problem

	Category	
Response	Normal	Bulimic
Yes	84	14
No	264	9

The next chi-square examined the relationship between diagnosis and the use of a range of weight loss techniques, including exercise and the more extreme forms of losing weight, such as vomiting or laxatives. The relationship between these two variables was found to be statistically significant, chi-square (1, $N=383$) = 8.277, $p < .01$. This result confirms the view that one of the distinguishing features of bulimia is the use of extreme weight loss techniques, such as purging. Observed frequencies can be seen in Table 2.20.

Table 2.20 Relationship between diagnosis and “extreme” weight loss practices.

	Category	
Response	Normal	Bulimic
Yes	97	13
No	263	10

Thus, the results represented in Tables 2.16-2.20 indicate that bulimics were significantly more likely than non-bulimics to be unhappier with their weight than non-bulimics and therefore more likely to be dieting (Johnson et al., 1984). They also support research of which indicates that they are also more likely to use extreme weight loss techniques (Greene et al. 1990; Wilson et al. 1991) and to see their eating as disordered (Crowther et al. 1985).

d.) The relationship between diagnosis and “psychological” eating.

This series of questions was based on the Herman and Polivy (1980, 1985) proposition that successful dieting requires psychologically-based restraint to outweigh physiological hunger and that eating becomes a response to psychological stimuli, as well as to physiological ones. Also, Fairburn (1985) suggests that bulimic behaviours are a response to negative moods, such as boredom or depression.

A chi-square test was applied to the relationship between diagnosis and overeating when bored. This was found to be not statistically significant, chi-square (1, $N=383$) = 1.894, $p < .17$. As Table 2.21 indicates, both groups of respondents were likely to eat when bored.

Table 2.21 Relationship between diagnosis and eating when bored

Response	Normal	Bulimic
Yes	166	14
No	194	9

Another analysis examined the relationship between diagnosis and the practice of allowing oneself to eat only when this has been “earned” in some way. This was expressed in the following way in the questionnaire; “Right now, I will allow myself to eat only when I have done something to earn it.” This question was suggested by Bruch’s (1982) observations that restricting and purging anorexics would deny themselves food if they felt they had not deserved it in some way.

A chi-square test was applied to the relationship between diagnosis and the practice of eating when the respondent believes it has been earned. This relationship was found to be statistically significant, chi-square (1, $N=381$) = 4.381, $p < .05$. Thus bulimics are more likely to eat when they believe they have earned it

in some way. The observed frequencies for the four cells can be seen in Table 2.22.

Table 2.22 Relationship between diagnosis and “earned” eating

	Category	
Response	Normal	Bulimic
Yes	36	6
No	322	17

A chi-square was applied to the relationship between diagnosis and eating when depressed and found to be statistically significant, chi-square (1, $N=383$) = 7.882, $p < .01$. Thus bulimics are more likely to eat when depressed than non-bulimics.

The observed frequencies for the four cells can be found in Table 2.23.

Table 2.23 Relationship between diagnosis and eating when depressed

	Category	
Response	Normal	Bulimic
Yes	159	17
No	201	6

Another chi-square test was applied to the relationship between diagnosis and overeating when tired. This was not statistically significant, chi-square (1, $N=379$) = 1.716, $p < .20$, indicating that both groups of subjects were equally unlikely to overeat when tired. The frequencies can be seen in Table 2.24.

Table 2.24 Relationship between diagnosis and overeating when tired

	Category	
Response	Normal	Bulimic
Yes	70	7
No	287	15

Thus the four questions on psychological eating produced mixed results. Tables 2.21 and 2.24 indicate that both groups were likely to eat when either bored or

tired. (This is also indicated in Table 2.8). However, bulimics were more likely to eat when depressed or when they believed they had earned the right to eat in some way as indicated in tables 2.22 and 2.23.

A further series of questions examined the relationship between diagnosis and attitudes to weight and shape. These were based on research which has indicated women in general believe men prefer slim women (Fallon and Rozin 1985; Williamson et al. (1985) and that these beliefs are significantly stronger among bulimic women (Post and Crowther 1985).

The first question asked if respondents believed that fatness was a sign of lack of willpower. A chi-square test was applied to the relationship between diagnosis and this belief and found to be statistically significant, chi-square (1, $N=376$) = 10.00, $p < .01$. This indicated that bulimics were more likely to endorse the view that fatness was a sign of lack of willpower. The observed frequencies for the four cells can be found below.

Table 2.25 Relationship between diagnosis and perceived lack of willpower

	Category	
Response	Normal	Bulimic
Yes	140	17
No	213	6

A chi-square test was applied to the relationship between diagnosis and respondents' belief that men prefer slim women. As Table 2.26 indicates, respondents from both the normal and bulimic group subscribed to that belief and there was not a significant statistical link between diagnosis and belief, chi-square (1, $N=378$) = 2.07, $p < .15$.

Table 2.26 Relationship between diagnosis and belief that men prefer slim women

Response	Category	
	Normal	Bulimic
Yes	288	23
No	65	2

Another chi-square was applied to the relationship between diagnosis and the belief that the respondent's partner preferred slim women. This also was non-significant, chi-square (1, $N=320$) = 1.638, $p < .20$. The observed frequencies are shown in Table 2.27 below.

Table 2.27 Relationship between diagnosis and partner's preference for slimness.

Response	Category	
	Normal	Bulimic
Yes	147	6
No	155	12

The results listed in Tables 2.25-2.27 indicate that the women in the present sample believed that men preferred slim women, although those who had partners indicated that in terms of their own personal relationship, this was not necessarily true. The one significant chi square result indicated that bulimics were more likely to see fatness as a sign of lack of willpower. This negative view of overweightness is consistent with Russell's (1979) description of bulimics' fear of fatness "which they described in excessively harsh terms out of keeping with sensible standards" (p.432).

2.12 DISCUSSION OF RESULTS (c).

The third aim of the study was to see if there was a relationship between diagnosis of an eating disorder and dieting practices and attitudes to shape and weight. A series of chi-square analyses indicated that diagnosed respondents were more

likely than normals to express dissatisfaction with their shape and weight (Tables 2.11-2.20). They were slightly more likely to eat for psychological reasons such as boredom than normals (Tables 2.21-2.24) and believed that fatness was a sign of lack of willpower (Table 2.25). These results are consistent with previous research (discussed earlier in this chapter) and also with Russell's original 1979 description of bulimia.

2.13 SUMMARY AND CONCLUSIONS:

The present study had three aims:

To survey the dieting behaviours and beliefs of a group of females in an age group most likely to develop eating disorders.

To assess the frequency of potential eating disorder in this sample and see if there was a correlation between "diagnosis" and a range of dieting beliefs and practices, as well as attitudes towards weight and shape.

Three hundred and ninety nine females between 12 years and 30+ years completed a questionnaire measuring dietary beliefs and practices, and attitudes to body shape and weight.

The results of the study indicated widespread dissatisfaction with weight at all ages (Table 2.3). This result is consistent with previous research, which has found widespread dissatisfaction with weight among normal or even underweight subjects (Huon 1994, measuring adolescents; Cooper and Fairburn 1983; Fairburn and Cooper 1984 for adults).

There was also widespread dissatisfaction with body shape at all ages, as indicated by Table 2.5. This result was also consistent with previous results, (Moore 1988).

The questionnaire also indicated widespread use of a range of weight loss techniques, such as dieting, counting calories, exercise and vomiting or laxative use. Again, these results are consistent with previous studies, which indicate that the above methods are frequently used by women and girls wanting to lose weight (Cooper and Fairburn 1983; Crowther et al. 1985; and Huon 1994).

At every age, a large proportion of respondents endorsed the view that slimness is more valued by men, and that fatness is an indication of weakness. These results support those of Fallon and Rozin (1985) and Tiggemann (1996) who found that women persistently chose a thinner ideal shape and believed that men preferred women thinner than the men themselves reported preferring.

In addition, a number of respondents at every age level reported eating for “psychological” reasons, such as to alleviate boredom or tiredness.

While past research and the present study indicates that large numbers of women and girls express dissatisfaction with their weight and shape and may engage in more or less extreme weight control measures, a much smaller percentage will go on to develop a full-blown eating disorder such as bulimia. Research into the prevalence of bulimia in the community indicates it to be about 1.9% (Cooper and Fairburn 1983). An attempt was made in the present study to assess the prevalence of bulimia by using a reliable self-report instrument, in this case, the EDI. In the present study prevalence was estimated at between 5.7% and 8.5% as having “bulimic tendencies”. These percentages are higher than that reported by Cooper and Fairburn and were most likely to indicate those with bulimic tendencies, rather than those who would fulfil strict diagnostic criteria for bulimia nervosa. To confirm a diagnosis it would be necessary to follow up suspected cases with diagnostic interviews, and this was beyond the scope of the present study. The

clinical implication of this finding is that it may be possible to identify those at risk of developing an eating disorder by assessing a range of dysfunctional attitudes and dietary practices among the younger age groups in particular.

A series of chi-squares analysed the significance of the relationship between positive “diagnosis” and dissatisfaction with weight and shape, dieting practices and beliefs about the importance of thinness. This research was suggested by previous studies which have found that dieting almost always predates the onset of bulimia (Cooper and Fairburn 1983; Garfinkel et al. 1980) and that bulimics report much more frequent dieting (Johnson et al. 1984) than controls.

The results of the present study supported this view in that those diagnosed as bulimic were significantly more likely to express dissatisfaction with their shape and weight, diet often, use more extreme weight-loss techniques such as purging, and see overweightness in particularly harsh terms.

In Russell’s original description of bulimia (1979) and in subsequent descriptions one of the key elements of bulimia, is the “intensity and prominence of (bulimics’) beliefs and values concerning their shape and weight” (Fairburn 1985, p.160); or “persistent overconcern with shape and weight” (Wilson et al. 1991, p.575). Thus the findings of the present study lend support to this conceptualisation, in that, while large numbers of women and girls express dissatisfaction with their weight and shape, only a small proportion will go on to develop an eating disorder such as bulimia. The findings also suggest that it is the strength of this concern that distinguishes bulimics from normal dieters or weight-preoccupied women, and that engenders bulimic behaviour.

The importance of this specific psychopathology of bulimia underpins the development of cognitive behavioural therapy for bulimia, as first described by

Fairburn in 1981. This pays particular attention to changing bulimics' beliefs and values concerning the importance of shape and weight in their lives. As Fairburn notes, "It is therefore likely that change in this specific psychopathology is a prerequisite for full recovery." (Fairburn 1985, p.161.) The importance of cognitive change versus behavioural change is addressed in the second study.

CHAPTER 3

3.1 TREATMENT OF BULIMIA NERVOSA.

In his original paper on bulimia nervosa in 1979, Russell discussed the difficulty of treating bulimics compared with anorexics. He made some tentative suggestions for treatment. He suggested that treatment should be aimed at both eating behaviours and the “patients’ reluctance to let her weight rise to a healthy level” that is, the psychological basis of the disturbed eating. He suggested that the initial focus should be on changing the bingeing and purging and the physical sequelae of these. Then treatment should be aimed at the depression, especially if it is severe. He then goes on to say, “the broader context for the treatment requires a psychotherapeutic approach.... Whatever may be the fundamental aetiology of the eating disorder, the patient usually interprets her symptoms in the light of current and past emotional problems and welcomes the opportunity to discuss them” (p.447).

Since Russell’s initial description of bulimia a multitude of therapeutic approaches have been used. These therapies fall into the following categories.

a.) Pharmacological Treatment.

The justification for using drugs in the treatment of bn stems from the belief that bulimia is secondary to affective disorder, and certainly some drug studies have found some of the symptoms of bn, such as depression, have been helped by the administration of medication. Although the first reports of drug treatment for bn appeared in the mid 1970’s, results have been hard to interpret because of small sample sizes, lack of control groups or placebos. A range of medications has been used, including anti-convulsants (Wermuth et al. 1977); anti-depressants (on the basis that bulimics are usually depressed) such as imipramine (Pope, Hudson, Jonas and Yurgelun-Todd 1983, 1985), desipramine (Hughes, Wells, Cunningham and Ilstrup

1986; Mitchell and Groat 1984) and mianserin (Sabine, Yonace, Farrington, Barratt and Wakeling 1983) who found that the mianserin had no significant anti-binge effect. Although Pope et al. (1983) reported that imipramine produced a greater reduction in binge frequency and “intensity” it was unclear whether the subjects discontinued medication. In addition, all of their subjects were suffering from concurrent psychiatric problems, such as major depression, dysthymic disorder and phobia. MAO inhibitors have also been tried. Walsh, Stewart, Wright, Harrison, Roose and Glassman (1984) obtained a significant decrease in binge frequency with phenelzine compared with placebo. Five out of nine patients ceased bingeing entirely and the other four reduced their binge frequency by 50%. However, there were significant relapse rates when the drug was discontinued. As in Hughes’ study there was no correlation between changes in depression score and binge frequency during treatment. Walsh also had a very high drop-out rate (58%) during the study, which makes his results difficult to interpret.

As mentioned earlier, few of the drug studies had a placebo group for comparison. One study that did was conducted by Pyle, Mitchell, Eckert, Hatsukami, Pomeroy and Zimmerman, (1990). They divided 68 bulimic women into four treatment groups:

imipramine + intensive group therapy

placebo + intensive group therapy

imipramine only

placebo only

Treatment took 12 weeks. The intensive group therapy consisted of nutritional counselling, cognitive-behavioural techniques and self-control mechanisms. They then had a complicated mixture of maintenance strategies, imipramine, placebo, group participation or nothing, not necessarily related to their initial treatment. Pyle et al.

found that the percentage reduction in symptoms (defined as frequency of bingeing and purging only) from baseline was similar no matter what treatment was received. They noted that “The most important factor in preventing relapse was initial treatment with group psychotherapy regardless of maintenance treatment.” (p874). They also noticed a high relapse rate when treatment with the active drug only was discontinued. The authors concluded: “This study indicates that imipramine may have an initial effect only on certain behavioural symptoms such as frequency of bingeing and purging but relapse rate is high when medication is discontinued.” (p.874).

More recent drug studies have used newer types of anti-depressant, the Selective Serotonin Re-uptake Inhibitors (SSRIs). These drugs have come to be preferred in treatment of bulimia because of their fewer anticholinergic and antihistaminic side effects (Garfinkel and Walsh 1997). These studies have produced results similar to those using other drugs. The Fluoxetine Bulimia Nervosa Collaborative Study Group (1992) found that a high dose (60mg) produced better results than either a low dose (20mg) or placebo. Goldbloom, and Olmstead (1993) compared fluoxetine alone with psychotherapy alone. The latter was more effective in reducing bulimic symptomatology. The combination of the two treatments produced significantly better results. In a study of in-patients, Fichter, Leibl, Rief, Brunner, Schmidt-Auberger and Engel (1991) compared fluoxetine with placebo. However, as all patients also received behavioural therapy, it was not possible to separate drug effects from general treatment effects.

In a summary of drug studies in the treatment of bn, Garfinkel and Walsh (1997) found no clear difference in efficacy among the various drugs used. Generally studies have indicated that active drugs produce better results than placebo. There have been no studies where different active drugs have been compared directly with each other.

Garfinkel and Walsh also noted that while short-term abstinence rates from bingeing and purging (on average, eight weeks) were about 30%, there were generally significant relapse rates (30-45%) when patients were followed for four to six months. In addition, many studies were marred by high drop-out rates during treatment. Another problem was the lack of long-term follow-up studies, therefore long-term effectiveness of medication cannot be assessed. They concluded that while medication does have a role to play in the treatment of bulimia, that role is adjunctive. Studies where medication is compared with various forms of psychotherapy, or in conjunction with psychotherapy have consistently indicated that psychotherapy alone produces better results than medication alone. They have also indicated that the addition of medication to psychotherapy produces small additional effects.

b.) Psychoanalytic approaches.

In line with their view that bulimia represents a split between the self and the body resulting from disturbed family interactions, psychoanalysts treat bulimia on a number of fronts. One of the foremost exponents of psychoanalytic psychotherapy with eating disordered women, Hilde Bruch (1985) recommended that for successful resolution of the problem, nutritional management, examination of the family interaction and intensive individual psychotherapy designed to help the patient correct "faulty underlying assumptions" needed to proceed concurrently.

However, studies which have reported on a psychoanalytical approach to the treatment of bulimia seem to have focussed on theoretical issues and were not empirically validated. Many fail to give sufficient details of treatment techniques used (as opposed to issues dealt with) and outcome measures.

Two group approaches have been reported (Lacey 1983; Stevens and Salisbury 1984). They combined a behavioural approach to achieve symptom control with a

psychoanalytic formulation to explore the underlying emotional conflicts. Lacey has commented that outcome studies show that treatment that has ignored underlying conflicts and have focussed solely on behaviour have little long-lasting effects. He identified common unconscious conflicts, but, other than recommending time-limited therapy did not further define the “psychodynamically oriented individual psychotherapy” used. Another aspect of Lacey’s eclectic treatment programme was his use of diary keeping which he described as a transitional object. In further discussion of his treatment approach Lacey (1985) noted that psychodynamic treatment led to an increase in well-being, but had little impact on the overt eating symptoms. Lowenkopf (1983) reported on a total of 9 patients over a 10 year period (treatment ranged from 8 months to 10 years) with “exploratory and supportive psychotherapy” otherwise not specified. He obtained “mixed” results, which he attributed to the varying chronicity and severity of the problems.

As with the drug studies, it is difficult to assess the effectiveness of psychoanalysis with bulimia, because of the lack of a clear description of methodology and the small subject numbers used.

c.) Self-Help Group Approach.

Self-help groups have traditionally been developed by individuals who felt that their needs were not being satisfactorily met by the professional community and these groups have relied upon peer networks for mutual support (Baker-Enright, Butterfield, and Berkowitz 1985). It is not uncommon for such groups to be affiliated with professionals and these groups have been referred to as support groups. There is also evidence in the literature to suggest that self-help groups are effective for other problems, such as TOPS (Take Off Pounds Sensibly), AA(Alcoholics Anonymous) and OA (Overeaters Anonymous).

There have been no definitive studies of their effectiveness. Baker-Enright et al., (1985) stressed that peer support should not be an alternative to professional treatment but rather an adjunct to treatment.

The support group movement began with the notion that people who have coped successfully with a problem can provide a valuable resource for others struggling with similar problems. Baker-Enright et al. surveyed the formats of large numbers of self-help groups in the US, but did not evaluate them. They noted that OA, based on the AA model, has become a popular self-help group for anorexics and bulimics.

However, they concluded that it had a number of limitations: firstly, that complete abstinence may be achieved for alcohol but not for food; secondly, that there is greater support for physical addiction to alcohol than there is for addiction to particular types of food; and finally, that the model of strict abstinence, when applied to self-induced vomiting, may create guilt or shame in the bulimic patient who relapses under stress. Baker-Enright et al. point out that there is no treatment outcome research for self-help or support groups.

A recent development in the self-help approach has been the development of self-help treatment manuals. At the present time, two self-help manuals have been evaluated in terms of their treatment effectiveness (Cooper 1993; Schmidt and Treasure 1993).

Another self-help manual has been developed by Fairburn (1995) but as yet there are no studies of its effectiveness. All of the self-help manuals use a cognitive-behavioural approach, first described by Fairburn in 1981 and later developed into a therapeutic manual in 1985 (which is described in detail in Chapter 4 of this paper.)

The reasons for the development of self-help manuals were basically practical, where for example specialist treatment may not be widely available, where the full course of treatment is time-consuming, and where an increasing number of bulimics was

presenting for therapy at major treatment sessions (Cooper, Coker and Fleming 1994). Another reason for the development of self-help manuals for bulimia was their proven effectiveness in the treatment of other psychological disorders, such as agoraphobia (Ghosh and Marks 1987), depression (Scogin, Jamison and Davis 1990), problem drinking (Savage, Hollin and Hayward 1990) and smoking (Glyn, Boyd and Gruman 1990).

Cooper et al. (1994) reported on the effectiveness of a self-help manual with 18 bulimic women. Treatment consisted of eight sessions of 20-30 minutes each of “encouragement” by a non-specialist to work with the manual. At the end of treatment frequencies of bingeing and vomiting had decreased by 85% and 88% respectively. In a later study, Cooper et al. (1996) reported on 67 bulimic women who “persisted with” the complete treatment manual (out of a total of 82 women who started). Of the 67, frequency of bingeing declined by 80% and of vomiting by 79% at the end of treatment. Fifty of the original 67 were followed up one year later (none had received psychological treatment in the interim). Compared to pretreatment levels of bingeing and vomiting, the reductions were 84% and 87% respectively.

Another self-help manual has been developed by Schmidt and Treasure (1993). Effectiveness of this manual has also been examined in a number of treatment studies. Schmidt, Tiller and Treasure (1993) gave the manual to 28 bulimic women at their first assessment session. Between four and six weeks later, these patients were reassessed. Schmidt et al. reported a “significant decrease” in bingeing and vomiting (clinician rated). In a later study, Treasure et al. (1994) compared the self-help manual (8 weeks) with individual CBT (16 weeks) and with a wait list control (8 weeks) in a total sample of 81 women suffering from bn. All patients were assessed prior to treatment and again at eight weeks (ie. half way through CBT). At eight weeks, 22%

of those using the manual were in “full remission” from their bulimia. For the CBT patients, 24% were described as being in full remission at eight weeks. Whether this figure improved after these patients received their full treatment was not recorded.

Self-help treatment manuals are a new development in the treatment of bn and studies to date suggest that they are useful in reducing bingeing and vomiting, and that these improvements are maintained (Cooper et al. 1996). However, studies reported so far have not examined in any detail the manuals’ usefulness in reducing the broader range of bulimic symptomatology, such as dietary restraint, depression, low self-esteem, and preoccupation with weight and shape. In addition, apart from the limited comparison reported by Treasure et al. (1994), there have been no comparative studies of self help manuals and other therapies. Judgement about the usefulness of this therapeutic method awaits the results of further comparative studies.

d.) Family Therapy.

As Schwartz et al. (1985) pointed out, families of anorexics have been subject to considerable scrutiny but the same does not seem to have happened to the families of bulimics. They found no descriptions of bulimics’ families that relied on more than the reports of patients. This could be because bulimics tend to be older than anorexics and are no longer living with their families. Also many bulimics are secretive in their eating habits and claim that their families are unaware of their problems. In spite of this, Schwartz et al. managed to provide a detailed description of family therapy for 33 bulimics and their families, using family therapy techniques.

In line with their view of the aetiology of bulimia nervosa, Schwartz et al. indicate that change in bulimic behaviour results from changing the context of that behaviour, i.e. changing family interactions. The focus is not exclusively interpersonal, Schwartz

et al. attempt to change rigid patterns of thinking as well as rigid patterns of interaction that maintain the symptom.

They examined the outcomes of 33 cases after treatment with family therapy methods.

They found:

66% were nearly always in control of bingeing and vomiting at the end of treatment

10% were bingeing and vomiting between 2 episodes per month and once per week.

10% were bingeing and vomiting 2-4 episodes per week

14% were bingeing and vomiting more than 5 episodes per week. Unfortunately the Schwartz et al. study did not include a control group or use standardised measures of bulimic behaviour or psychosocial adjustment.

e.) Hypnosis.

There have been very few studies into the use of hypnosis in bulimia. Griffiths, Hadzi-Pavlovic and Channon-Little (1994) compared hypnobehavioural treatment (HBT) with CBT and a wait list control in 78 bulimic patients. The hypnobehavioural treatment contained elements described as: positive suggestions aimed at increasing self control over bingeing and purging behaviours; greater problem solving skills; relaxation and promotion of self-esteem. Treatment consisted of eight weekly one-hour sessions. At the end of treatment, both the CBT and HBT groups had significantly reduced their frequency of bulimic behaviours, but were not significantly different from each other. In a nine-month closed follow up of 48 of the original patients, Griffiths et al. (1996) found that there were no significant differences between the CBT and HBT groups. Thus it appears that hypnosis may be a useful addition to therapy, but there is, as yet, no evidence to suggest that it is an effective therapy alone.

f.) Nutritional Approaches.

Nutritional counselling has been used as an adjunct to cognitive behavioural therapy (Fairburn 1981) and psychotherapy (Willard, Anding and Winstead 1983). Dalvitt-McPhillips (1984) reported on a dietary approach to treatment. Twenty subjects were treated with a “nutrient-dense diet containing 1400 calories free of blood-sugar insulin level destabilisers”. However no systematic assessment or treatment of psychological problems was involved and treatment was by mail.

Beumont, O'Connor, Lennerts and Touyz (1987) reported on the use of nutritional counselling as part of a multi-disciplinary team which included a psychiatrist, psychologist, physiotherapist, dietitian and nursing staff. The dietitian discusses with the patient such issues as rate of eating, food preparation, etc. which other therapists may include as the “cognitive” element of cognitive-behavioural therapy (Fairburn 1985). The dietitian may help explode some of the food “myths” that may be affecting the patients’ behaviour. Nutritional counselling is seen by its practitioners as important in helping the patient regain control over her chaotic eating patterns and the fact that bingeing and vomiting can be seen in the context of chronic dieting and sometimes poor nutrition supports this view.

There have been few studies which have reported the efficacy of nutritional counselling when used as a sole means of treatment. O'Connor, Touyz, and Beumont (1987) studied 28 bulimics who showed little evidence of underlying psychopathology at psychiatric interview and who were referred to a dietitian for sole clinical management. Ten did not complete treatment. Of the 18 who did, all ceased laxative abuse over an average of 9.5 sessions, 12 ceased all bulimic behaviour (defined as bingeing and vomiting). Unfortunately there was no control group, no follow up information was presented, and the group was perhaps not truly

representative of the bulimic population, as they had no psychiatric features, though it is not explained how this was assessed.

Another study (Laessle et al. 1991) compared nutritional management with stress management in a total of 55 bulimic women. After three months' group therapy, patients in both groups significantly reduced their rates of bingeing and vomiting and showed significant reductions in depression and body dissatisfaction. Nutritional management produced a faster reduction in bingeing, while stress management produced greater changes in such psychological concomitants of bulimia, as ineffectiveness, interpersonal distrust and anxiety. The study concluded that nutritional management was a useful "first intervention" for bulimia.

As mentioned earlier, nutritional management is seldom reported as a sole treatment method, but is usually incorporated into other forms of treatment. Aspects of nutritional counselling generally appear in behavioural techniques and cognitive-behavioural techniques and will be discussed there.

g.) Behaviour Therapy.

Behaviour therapy has long been a part of treatment for anorexia and now has gained acceptance in the management of bn (Huon and Brown 1984). Several behaviour therapy studies have been undertaken, (Leitenberg et al. 1984; Linden, 1980; Long and Cordle 1982; Rosen and Leitenberg 1982, 1985) and with the exception of Leitenberg et al., all have been single case studies. Most of the researchers have used their own criteria for bulimia, probably as the studies were published prior to the introduction of DSMIII-R (1987) or Russell's (1979) criteria.

A range of behavioural techniques has been used, including response prevention, assertion training, stimulus control, construction of alternative response, stimulus narrowing, self-reinforcement, self-control relaxation, contingency contracting, social

reinforcement and resocialisation. The length of treatment in the studies ranged from nine weeks (Linden) to 40 weeks (Long and Cordle). Behavioural strategies have sometimes been supplemented by cognitive techniques (Long and Cordle 1982) and cognitive restructuring (Agras, Schneider, Arnow, Raeburn and Telch 1989; Wilson, Rossiter, Kleifeld, and Lindholm 1986). Some studies have included dietary education (Linden, 1980; Long and Cordle 1982).

There are only four controlled studies of simple behavioural therapy, as mentioned above, most use behaviour therapy (generally exposure plus response prevention; ERP) in addition to other therapies. This treatment is based on the anxiety reduction model, which says that vomiting is an escape-avoidance response reinforced by anxiety reduction. Therefore the aim of treatment is to expose the patient to anxiety caused by bingeing and preventing her usual response of vomiting.

Rosen and Leitenberg (1982) in a single case study reported that their patient had ceased vomiting after 44 days, although neither duration of individual sessions, nor follow-up data were presented.

Leitenberg et al. (1984), reported that four out of five patients reduced bingeing and vomiting after three sessions of ERP of two weeks each, they also decreased their anxiety about bingeing, and patients gained up to 10lb in weight.

Giles, Young and Young (1985) treated 34 patients with ERP, seem to have used some elements of cognitive therapy as well. In this study six patients dropped out of treatment and a further six were labelled "recalcitrants". Of the patients who did not drop out, 79% were improved at the end of treatment, although this improvement was not operationally defined, nor was the duration of treatment.

Leitenberg, Rosen, Gross, Nudelman and Vara (1985) compared ERP, both in clinic and external settings, such as patients' homes with cognitive behavioural therapy

(CBT) and a wait list control, in a total of 47 patients. After six weeks of treatment, ERP patients had a slightly better outcome in reducing frequency of vomiting, but in no other measure.

The problems with most of the studies listed above are their small sample size, lack of control groups and the fact that outcome data are often limited to vomiting frequencies only. Larger studies, which have employed control groups, have not, so far, produced strong evidence that ERP is superior to other therapies. Another problem is that ERP is often used as an addition to other forms of therapy, and it is difficult, in such circumstances, to ascertain how effective it is.

h.) Cognitive-Behavioural Therapy (CBT).

This approach to treating bulimics was first suggested by Fairburn in 1981 and has since generated considerable research interest. Interest in the application of cognitive techniques alone for the treatment of bn can be traced to earlier programmes developed for obesity. More recently, Garner and Bemis (1982, 1985) have proposed a cognitive model for bulimia nervosa based on reasoning errors, dysfunctional attitudes and faulty assumptions which are characteristic of anorexics. Their cognitive model has been derived from principles enunciated by Beck (1967) in the treatment of depression.

In his original paper, Fairburn (1981) described a cognitive-behavioural approach to the treatment of bulimia. The rationale for this form of treatment was the prominence and intensity of bulimics' dysfunctional beliefs about their shape and weight. These beliefs give rise to extreme dieting, vomiting and laxative abuse, preoccupation with weight, shape and food. He noted that these patients believe that their weight and shape are of paramount importance and that both must be kept under strict control. He hypothesised that bingeing represented a secondary response to extreme dietary

restraint. Therefore the cognitive-behavioural view of bn was that rather than being symptomatic of bulimia nervosa, the beliefs and values around weight and shape are of primary importance in the maintenance of the condition. Thus a treatment which directly addresses change in cognitions was necessary to produce full recovery.

As the name suggests, this form of treatment has two main elements, which may borrow elements from other forms of treatment described earlier. In his original description of this form of treatment in 1981, Fairburn described the successful treatment of eleven bulimic women. Treatment was on an out patient basis and consisted of two main elements. In the first part of treatment the aim was to interrupt the cycle of overeating and vomiting by helping the patient to control her food intake, eg. by restricting eating to mealtimes, delaying of bingeing, reducing the availability of food and so on. Patients kept self-monitoring diaries throughout treatment. In the second phase of treatment the patient and therapist identified circumstances under which the urge to binge occurred. The therapist tried to help the patient to develop more adaptive ways of coping with these events by training her in problem-solving. At the same time she was encouraged to identify those thoughts which were proving an obstacle to behaviour change. These were usually irrational concerns about body weight and shape. Again, cognitive change methods were used, with the patient being trained to challenge and replace maladaptive thoughts (following the techniques developed by Beck). In addition, more conventional behavioural strategies are used, the most important of which is exposure, ie. exposure to those foods which she sees as “bad” or “fattening”. In Fairburn’s initial series of 11 patients, each patient received individual treatment which lasted between three and 12 months. Follow up was between four and 12 months. The results were as follows:

10/11 significantly reduced the frequency of bingeing and vomiting and in eight this improvement was maintained at follow up. Following this initial research, Fairburn went on to expand his cognitive-behavioural approach and developed a manual for practitioners to use (1985). The main elements of CBT are set out in Table 3.1 below.

TABLE 3.1 AIMS OF CBT¹

STAGE 1 (4 weeks, 2 appointments per week)

1. To establish a sound therapeutic relationship.
2. To disrupt habitual binge-eating, self-induced vomiting and laxative abuse.
3. To introduce a pattern of regular eating.
4. To inform the patient of the physical consequences of binge-eating, self-induced vomiting and laxative abuse.
5. To provide information about the “effectiveness” of vomiting and laxative abuse as means of weight control.
6. To establish regular weekly weighing.
7. To examine the “function” of binge eating and self-induced vomiting.
8. To enlist the cooperation of friends and relatives.

STAGE 2 (8 weeks, one appointment per week.)

1. To establish and maintain a pattern of regular eating.
2. To reduce dietary restraint.
3. To identify the circumstances that tend to result in binge eating and to help the patient
 - a. to cope more effectively with such circumstances,
 - b. to reduce the frequency of their occurrence.
4. To identify and challenge thoughts, beliefs and values that are perpetuating the eating problems.
5. To help the patient deal with body image misperception and body image disparagement.
6. To raise the issue of termination.

STAGE 3. (3 interviews over six weeks.)

Aimed at maintenance of progress and preparation for future difficulties.

Following the development of the treatment manual, Fairburn and colleagues have examined the effectiveness of CBT in comparison with other therapies. Fairburn, Kirk, O'Connor and Cooper (1986) and Fairburn, Jones, Peveler, Carr, Solomon, O'Connor et al., (1991) compared individual CBT with other psychotherapies and

¹ Adapted from Fairburn, 1985.

found that CBT was more effective in reducing bulimic behaviours, modifying disturbed attitudes to weight and shape, extreme dieting and associated psychopathology. These improvements have been maintained at follow up. In a long-term follow up study, Fairburn, Norman, Welch, O'Connor, Doll and Peveler (1995) found that treatment effects of CBT were maintained at between three to 11 years after treatment.

In a summary of 13 controlled studies of CBT, Wilson, Fairburn and Agras (1995) found that the mean percentage reduction in bingeing was between 93% and 73% and purging between 94% and 77%. Aside from the clinically significant reductions in bulimic behaviours, treatment studies have consistently shown that dietary restraint is reduced (Fairburn et al. 1991; Wilson, Eldredge, Smith and Niles 1991). Attitudes to shape and weight, a key psychopathological feature of bulimia and one which is central to the cognitive-behavioural view of the disorder, also improve (Fairburn et al., 1991; Garner, Rockert, Davis, Garner, Olmstead and Eagle 1993). CBT also has a significant effect on associated psychopathology. Most studies have found significant improvements in depression, self-esteem and social functioning (Fairburn et al. 1986, 1992; Garner et al. 1993). In addition, these improvements have been maintained at follow ups of six months and a year (Fairburn et al 1993; Wilson et al. 1991) and up to 11 years (Fairburn et al. 1995).

Manual-based CBT was developed as an individual therapy. One study, by Schneider and Agras (1985) adapted Fairburn's approach to a group format lasting 16 weeks. Thirteen women who met DSMIII criteria for bulimia were treated. The primary outcome measure was the number of self-reported vomiting episodes, pre and post treatment measures of eating attitudes, depression, assertiveness and global level of psychological distress. Vomiting frequency declined significantly. Significant pre to

post treatment changes were also demonstrated on measures of depression, eating attitudes and assertiveness. At six months follow up, six patients had maintained their progress in terms of abstinence from bingeing and vomiting. Although the results were not as good as Fairburn's using individual treatment, Schneider and Agras' study suggests that cognitive behaviour therapy could be used successfully in a group of patients. They found that the addition of drugs to CBT did not significantly improve outcome.

i.) Interpersonal psychotherapy (IPT).

This form of psychotherapy was originally developed by Klerman, Weissman, Rounsaville and Chevron in 1984 as a treatment for depression. It was later adapted by Fairburn et al. (1991) to provide a credible alternative to CBT for bulimia, in treatment studies. Initial reasons for using IPT as an alternative to CBT were that bulimics have disturbed interpersonal functioning, a topic specifically covered in IPT, and, as with CBT, a detailed treatment manual (albeit for depression) was available, which could be readily adapted to the treatment of bn. As the therapeutic outcomes of IPT were comparable to those of CBT, Fairburn went on to develop IPT as a psychotherapy in its own right for bn (Fairburn, in G. L. Klerman and M. M. Weissman, Eds; *New Applications of Interpersonal Psychotherapy*, 1993). In IPT the therapist does not help the patient see their problems in terms of internal conflict. Instead, the patient's behaviour is explored in terms of interpersonal relations. Klerman et al. say "IPT tries to change the way the patient thinks, feels, and acts in problematic interpersonal relationships." (p.15). Certain behaviours such as guilt, lack of social skills and negative cognitions "are not focused on for their own sake, but only in relationship to significant persons in the patient's life." (p15). Four main problem areas are identified:

- Grief, usually abnormal grief about the loss of a significant person.
- Interpersonal disputes, defined as overt or covert conflicts with others.
- Role transitions, when a person has difficulty coping with life changes that require a role change.
- Interpersonal deficits, described as being when the patient presents with a history of social impoverishment that involves inadequate or unsustaining interpersonal relationships.

In early comparative studies, Fairburn et al. (1991, 1993, 1995) found that IPT was as effective as CBT in reducing a wide range of bulimic symptomatology at one year follow up. Research into the effectiveness of IPT compared with other therapies is still at an early stage, but results obtained by Fairburn and colleagues suggest that IPT may be an effective alternative to CBT, and as Wilson, Fairburn and Agras (1997) have suggested may be useful to use in patients where CBT has failed.

3.2 COMPARATIVE STUDIES.

Since its original development, CBT has been compared with a range of other therapies, including drug therapy and a range of other psychotherapies.

Mitchell et al. (1990) compared four treatment conditions: imipramine alone, group CBT alone, group CBT plus imipramine and group CBT plus placebo in a total of 155 patients. They found that the addition of drugs to CBT did not significantly improve outcome.

In a six month follow up of the above study, Pyle et al. (1990) found that the combination of CBT, paired with either active drug treatment or placebo, was associated with a lower relapse rate than drug treatment alone.

Agras et al. (1992) compared the effects of desipramine, CBT, and a combination of the two, as well as comparing two different times of withdrawal of medication (at 16

or 24 weeks). They found that the combined treatment and CBT alone were superior to drug treatment alone after 16 weeks.

Thus the studies discussed above suggest that adding CBT to drug treatment improves the effectiveness of the latter, and that CBT alone is more effective, both in the short and medium term.

Table 3.2 lists the studies comparing CBT with other psychotherapies.

These studies were a mixture of individual and group treatments, over different lengths of time, ranging from six weeks (Yates and Sambrailo 1984), to twenty weeks (Wilson, Eldredge, Smith and Niles 1991). Most were of eighteen weeks' duration. A number of these studies used some of the principles of cognitive therapy originally developed for the treatment of depression (Beck, Rush, Shaw and Emery 1979). For example, Yates and Sambrailo (1984) used what they called "cognitive restructuring" and assertion training as part of their CBT treatment "package", and Wilson, Rossiter, Kleifield and Lindholm (1986) used a "Socratic method" to help patients identify and challenge dysfunctional thoughts related to binge eating and purging. Other studies, such as those conducted by Fairburn and colleagues (Fairburn et al. 1991; Fairburn, Jones, Peveler, Hope and O'Connor 1993; Fairburn, Kirk, O'Connor and Cooper 1986; Fairburn, Norman, Welch, O'Connor, Doll and Peveler 1995; and Wilson, Eldredge, Smith and Niles 1991) used Fairburn's 1985 manual for CBT with bulimics in their comparisons with other psychotherapies. Use of treatment manuals allows different researchers to compare results, and help ensure treatment integrity by allowing independent corroboration of whether treatment was administered consistent with procedural specifications (Dobson and Shaw 1988; Wilson 1996).

Table 3.2 Controlled studies of cognitive behavioural therapy

Investigator	Treatment components	Duration	Sample Size	Treatment Response	Follow Up	FI Response
Yates & Sambrailo (1984)	Group CBT#	6 weeks	12	0% abstinent 75% improved	6 weeks	0% abstinent 75% improved
	Group CBT & behavioural instruction		12	6% abstinent 63% improved vomit only		13% abstinent improved vomit only
Kirkley, Schneider, Agras & Bachman (1985)	Group CBT	16 weeks	28	97% redn binge redn vomit 64% redn binge redn vomit	3 mths	N.S. diffs between gps
Wilson, Rossiter, Kleinfeld & Lindholm (1986)	Group CBT "nondirective" Cog. restructure CR + Exposure & Response prevention	16 weeks	17	33% ceased b/v 71% ceased b/v	12 mths	N.A. 6 subjects abstinent b/v
Fairburn, Kirk, O'Connor & Cooper (1986)	Ind. CBT	18 weeks	12	87% redn binge redn vomit	4,8,12 mths*	*f. binge 0 f.vomit 0
	Ind. STP		12	80% redn binge redn vomit		f. binge 0 f. vomit 3
Freeman, Barry, Dunkfield-Turnbull & Handerson (1988)	Ind. CBT	15 weeks	32	78% redn binge redn vomit	12 mths	33% dropped out from all groups.
	Ind. BT		30	37% redn binge redn vomit		88% abstinent (binge only) of balance
	Grp. Therapy		30	37% redn binge redn vomit		
Wilson, Eldridge, Smith & Niles (1991)	Ind. CBT	20 weeks	22 (total)	83% abstinent b abstinent v	3, 12 mths	*36% abstinent b 4% abstinent v
	Ind. CBT + ERP			76% abstinent b abstinent v		76% abstinent b 68% abstinent v
Fairburn, Jones, Peveler, Carr, Solomon et. al. (1991)	Ind. CBT	18 weeks	75 (total)	71% abstinent b abstinent v	See Fairburn et.al. (1993)	
	Ind. BT			62% abstinent b abstinent v		
	Ind. IPT			62% abstinent b abstinent v		
Fairburn, Jones, Peveler, Hope & O'Connor (1993)	Ind. CBT	Follow up of above (1991)			4,8,12 mths	95% reduction b 91% reduction v
	Ind. BT					NA
	Ind. IPT					20% abstinent v 95% reduction b 91% reduction v
Wolf & Crowther (1992)	Grp. BT	8 weeks	41 (total)	48% reduction b	3 mths	68% reduction b 75% reduction v

Table 3.2 Controlled studies of cognitive behavioural therapy

Garner, Rockett, Davis, Garner, Olmstead & Eagle (1993)	Gp. CBT				46% reduction v 44% reduction b 34% reduction v 8% increase b		reduction v 33% reduction b 41% reduction v
	W.L.				10% reduction v 73% reduction b 81% reduction v 69% reduction b 62% reduction v 92% abstinent b/v 100% abstinent b/v 69% abstinent b/v 48% reduction b	N/A	N/A
Thackwray, Smith, Bodfish & Mayers (1993)	Ind. CBT	4 mths	50 (total)			N/A	N/A
	Ind. SET					N/A	N/A
Wilfley, Agras, Telch, Rossiter, Schneider, et. al. (1993)	Gp. CBT	7 sessions	39 (total)			6 mths	69% abstinent b/v 38% abstinent b/v 15% abstinent b/v 53% reduction b
	Gp. BT						
Griffiths, Hadzi, Pavlovic, Channon-Little (1994)	Attention/Placebo Gp.						
	Gp. CBT	16 weeks	56 non purging bulimics			12 mths	50% reduction b
	Gp. IPT						
	W.L.					9 mths	56% reduction b/v
	Ind. CBT		23		71% reduction b 10% reduction b 71% reduction b 72% reduction v 74% reduction b 68% reduction v 26% reduction b 21% reduction v		
	Ind. HBT		27		N/A (based on '86, '91, '93 studies)		
Fairburn, Norman, Welch, O'Connor, Doll & Pavelet (1995)	W.L.		28				
	Ind. CBT	18 weeks	89			12 mths	58% remission
Cooper & Steere (1995)	Ind. FIT						50% remission
	Ind. CBT						30% remission
	Ind. CBT	18 weeks	27		46% abstinent b 54% abstinent v 50% abstinent b	12 mths	46% abstinent b 38% abstinent v 14% abstinent b
	Ind. CBT + ERP				43% abstinent v		7% abstinent v

* 12 mth follow up figures reported

Abbreviations for treatments are as follows:

- CBT: cognitive behavioural therapy
- BT: behavioural therapy
- CR: cognitive restructuring
- IPF: interpersonal therapy
- ERP: exposure and response prevention
- SET short term focal therapy
- W.L: wait list

These comparative studies can be loosely grouped into three types, depending on the kind of comparison being made.

3.3 CBT COMPARED WITH OTHER PSYCHOTHERAPIES.

Wilfley, Agras, Telch, Rossiter, Schneider, et al, (1993) compared sixteen weekly sessions of group CBT with group IPT. Both group treatments significantly reduced frequency of bingeing, pre to post treatment, an effect that was maintained at six and 12-month follow-ups. The groups were not significantly different from each other in effectiveness. However, there are two features of this study which make the results a little hard to interpret. Firstly, there was a 33% attrition rate during treatment and follow up among the CBT group, and an attrition rate of 11% in the IPT group. Secondly, the subjects were obese non-purging bulimics, and therefore quite different from the usual bulimic subjects used in treatment studies, who are typically of normal weight and purge.

Freeman, Dunkeld-Turnbull, Barry and Henderson (1988) compared a form of CBT (described as focusing on cognitive restructuring of dysfunctional beliefs about weight and shape) with behaviour therapy (focusing on re-establishing a normal pattern of eating, reduction of bingeing, purging and dieting and the use of alternative coping strategies such as relaxation) and group therapy, which was described as supportive and educational. Both CBT and BT were delivered individually. Thus, in addition to a comparison between types of treatment, there was a comparison between individual and group treatment. All three treatments resulted in a significant reduction in bingeing and vomiting, and these effects were maintained at follow up three months later. There was no significant difference between any of the treatments. Thus,

the group therapy seemed to have as strong an effect as the individual treatments, and the addition of cognitive elements to the individual treatment did not appear to make that treatment more effective.

However, as with the Wilfley study, the results of the Freeman study are not as clear-cut as they first appear. This is partly because both individual treatments had many features in common in both the content of the study and in the measurement of outcomes. For example, the CBT group was given behavioural tasks, which involved practising cognitive instructions, and the outcome measures were chiefly behavioural, such as frequencies of bingeing and purging behaviours.

Fairburn and colleagues (Fairburn et al. 1986, 1991, 1993, 1995) have conducted a series of studies comparing manual-based CBT with different psychotherapies. The earliest (Fairburn et al. 1986) compared full manual-based CBT with a version of Rosen's "short term focal psychotherapy" (Rosen 1979). The latter therapy focused more heavily than CBT on exploration of the eating problem and maintaining features, and no specific behavioural advice was given on symptom reduction. At the end of treatment and at four and eight month follow up both groups had significantly reduced their frequencies of bulimic behaviours. At 12 months follow up patients who had received CBT had significantly lower levels of general psychopathology and depression, as measured by the Present State Examination (Wing, Cooper and Sartorius 1979) and the Montgomery and Asberg Depression Rating Scale (Montgomery and Asberg 1979) respectively. These improvements were maintained at long-term follow up of between four and six years (Fairburn et al. 1995).

In another study, Fairburn et al. (1991) compared full manual-based CBT with another comparable treatment, Interpersonal Psychotherapy (IPT), which he designed for the treatment of bulimia. The advantage of this form of therapy is that, like CBT, it

is also manual-based, is of comparable duration and appears to be equally acceptable to recipients as a treatment. Both of these treatments were compared to behaviour therapy (a dismantled version of the CBT package that excluded the cognitive restructuring elements). All treatments were delivered individually. All had similar effects on the frequency and form of overeating and purging. IPT was less effective than either CBT or BT in the reduction of vomiting at the end of treatment. There were no significant differences among the three treatments in the percentage of subjects who ceased to purge. CBT was superior to both BT and IPT in attitudes to shape and weight as measured on the Eating Disorders Examination (Cooper and Fairburn 1987).

At four, eight and 12 month follow up (Fairburn et al., 1993) both CBT and IPT groups maintained their improvement in both behavioural and psychological measures. Neither group differed significantly from the other at these stages. The BT group did not maintain its improvement over time and differed significantly from both IPT and CBT in the above measures. The finding that CBT was superior to BT (which was a part, or dismantled form, of CBT) is interesting in that it suggests the importance of cognitive mediating factors. However, what these might be is still unclear, as the CBT group did no better at follow up than the IPT group. Thus, it appears that cognitive elements of treatment are important in bringing about change, but it is not clear what these elements are, and how they operate, or how they are maintained.

Garner, Rockert, Davis, Garner, Olmstead and Eagle (1993) compared individually delivered, manual-based CBT with supportive expressive therapy. This was described as non-directive, with the emphasis on listening to the patient and helping to identify problems and their solutions. No specific advice related to eating problems was given.

After four months of therapy both treatments were found to be equally effective in reducing binges, CBT was marginally more effective in reducing frequency of vomiting, and CBT was significantly more effective in reducing disturbed attitudes towards eating and weight, depression and self esteem.

3.4 CBT ALONE COMPARED WITH CBT PLUS OTHER TREATMENTS

In two interesting studies, Wilson et al., (1991) and Wilson, Rossiter, Kleifield and Lindholm (1986) examined the additive effects of exposure and response prevention (ERP) to CBT. In the 1986 study, Wilson et al. compared a “cognitive restructuring” treatment with cognitive restructuring plus ERP. The first treatment was described as a “Socratic method to help subjects identify and challenge dysfunctional beliefs related to binge eating and vomiting and replace these beliefs with ones which were more functional” (p.280). From this description, it appears that this treatment was primarily cognitive, rather than full CBT as described in the Fairburn 1985 manual. The second treatment involved subjects bringing their typical binge food into treatment sessions to eat and then being asked to focus on thoughts and feelings at different time periods after consumption of the food, while being prevented from vomiting. This treatment is typically used in studies examining the role of purging as an anxiety reduction technique among bulimics (Leitenberg, Gross, Peterson and Rosen 1984) and has been described more fully in Chapter 1. The results of this study suggested that CBT plus ERP was superior to cognitive restructuring alone in reducing frequency of bingeing and purging, and that these results were maintained at follow up 12 months later. However, this study is marred by small subject numbers (17) and high dropout rate (8) at follow up.

In the later study of 22 subjects, manual-based CBT was compared with itself plus ERP. Both treatments produced significant and comparable reductions in bingeing and

purging, eating patterns and attitudes to weight and shape post treatment. Treatment effects were generalised to improvements in different measures of general psychopathology and were maintained at follow-ups of three and 12 months. Wilson et al. concluded; "The findings are consistent with prior research showing that CBT is an effective treatment for patients with the core features of bulimia nervosa. Furthermore, the data suggest that the addition of an in-session exposure and response prevention does not enhance the effectiveness of the CBT program."(p.575).

Another study (Griffiths, Hadzi-Pavlovic and Channon-Little 1994) compared individual manual-based CBT with individual hypnobehavioural therapy (HBT) and a waiting list control. HBT was described as a technique designed to enhance the behavioural tasks in CBT, such as alternative behaviours and establishing better eating patterns. Following treatment both groups differed significantly from the control group both in the reduction of bulimic behaviours and in associated psychopathology. The two active treatments did not differ significantly from each other, either at the end of treatment or at follow up six months later. Thus it appears from this study that adding hypnotic behavioural instructions to the basic CBT "package" does not seem to add to its effectiveness.

3.5 STUDIES OF THE RELATIVE EFFICACY OF COMPONENTS OF CBT.

These studies have been labelled "dismantling" studies (Wilson and Fairburn 1993, p.264) because they have broken CBT down into parts, to try to identify those parts that have the biggest effect on symptom reduction.

In the earliest study Yates and Sambrailo (1984) compared a group of subjects undergoing CBT (consisting of cognitive restructuring, assertion training, realistic perception of weight gain and relaxation training) with another group of subjects who

received all of the above plus behavioural exercises such as stimulus control, response delay and prevention. After six weeks of therapy and again at six months' follow up, some subjects had reduced their frequency of bingeing and purging, but, as Yates and Sambrailo concluded, "the reduction could not be unequivocally attributed to the therapeutic interventions." (p.503). In addition, there was no significant difference between treatment groups.

Kirkley, Schneider, Agras and Bachman (1985) compared manual-based CBT with a dismantled form of CBT without specific behavioural instructions, such as establishing regular eating patterns, delay of vomiting, or stimulus control. Instead, "emphasis was placed on self-discovery, understanding one's bulimia and self-disclosure" (p.45). Both treatments produced significant reductions in depression, anxiety and cognitions associated with eating disorders. Full CBT was superior to the dismantled CBT in reducing bingeing and purging, and had fewer dropouts during treatment.

In a study providing "strong supportive evidence for a cognitive model of the maintenance of bulimia nervosa" Cooper and Steere (1995, p.875) compared CBT without explicit exposure instructions with exposure and response prevention treatment in the absence of cognitive restructuring techniques. At the end of 18 weeks of individual therapy, both groups reported significant reductions in bulimic behaviours and associated psychopathology. However, at one year follow up, whilst both behavioural and psychological improvements were well maintained for those who had received CBT, virtually all who had responded to the exposure treatment had relapsed.

The above study examined the role of exposure and response prevention in CBT.

Wolf and Crowther (1992) investigated the impact of the cognitive component of

CBT. They did this by comparing full CBT with the behavioural part only of CBT (such as specific advice on eating and diet and stimulus control). Both treatments were delivered in a group format, and effects were compared with a wait list control. Both treatments resulted in significant reductions in bingeing and purging behaviours. CBT was marginally superior to BT in the reduction of non-specific psychopathology. At follow up three months later, the behavioural group was better at maintaining reductions in bingeing, while the CBT group was superior to the BT group in maintaining improvements in general psychopathology, such as depression. Wolf and Crowther concluded that in the short term, behavioural interventions were at least as good as, and perhaps superior to, full CBT, but that interventions which contained a cognitive element were necessary for improvements to be maintained over the longer term.

Thackwray, Smith, Bodfish and Meyers (1993) also examined the relative efficacy of the cognitive behavioural and behavioural treatments for bulimia. A total of 39 bulimics received seven group sessions of either CBT (a shortened version of Fairburn's manual based treatment); or BT (devised by the researchers, but loosely based on the behavioural part of Fairburn's CBT manual); or an "attention placebo" control. This control group was different from such groups used in previous research with bulimics, in that the participants received "attention" for the same length of time as those in the treatment groups, rather than being put on a waiting list. At the end of treatment, 92% of the CBT group, 100% of the BT group and 69% of the control group were abstinent from bingeing and purging. At six-month follow up, 69% of the CBT group, 38% of the BT group and 15% of the control group were abstinent from these behaviours.

These results differ from those of Wolf and Crowther (1992), in that there was no difference between the treatment groups, post-treatment, in the changes in bulimic behaviours, depression and assertiveness. However, at follow up the CBT group was superior to the BT and control groups in the maintenance of behavioural changes. These results “support the conceptualisation of bulimia nervosa as a multifaceted disorder best treated with an approach that directly addresses maladaptive cognitions, problematic behaviours, and the development of more adaptive coping skills.” (p.639).

3.6 SUMMARY.

A large number of treatments for bulimia nervosa have been developed, with varying levels of effectiveness. These include family therapy, drug therapy, psychoanalytic psychotherapy, behaviour therapy, nutritional counselling, hypnosis interpersonal therapy and cognitive behavioural therapy. In comparative studies of treatment effectiveness, cognitive behavioural therapy has consistently produced greater improvement in bulimic behaviours and in the wide range of psychopathology associated with bulimia. Some later studies (those of Fairburn et al., 1991, 1993) have suggested that over the longer term (one year follow up) IPT might be as effective as CBT in reducing a wide range of bulimic symptoms. However, for the present, CBT is widely recognised and used as an effective treatment for bulimia.

There have also been a number of studies which have compared CBT with some of these other therapies, generally CBT compare with drug treatments, or CBT compared with other psychotherapies.

The studies summarised in Table 3.2 have in common their comparison of cognitive behavioural treatment (either based on a manual or individually developed) with other psychotherapy. While CBT was initially developed as an individual treatment lasting

approximately 20 weeks (Fairburn 1985), some of these studies (Freeman et al. 1988; Thackwray et al. 1993; Wilfley et al. 1993) have demonstrated that CBT can still have a significant and lasting effect when abbreviated (while retaining all the original features) and delivered in a group setting.

Other psychotherapies, such as IPT, SET and HBT or “additions” to CBT, such as ERP or drugs were not superior to CBT alone as shown by the studies of Agras et al. (1992); Fairburn et al. (1986, 1991, 1993, 1995); Garner et al. (1993); Griffiths et al. (1994); Mitchell et al. (1990); Pyle et al. (1990); Wilfley et al. (1993); Wilson et al. (1986, 1991).

In those studies which tested the significance of particular dimensions of CBT, such as behavioural instructions (Freeman et al. 1988; Kirkley et al. 1985; Thackwray et al., 1993; Wolf and Crowther 1992; Yates and Sambrailo 1984), or exposure instructions (Cooper and Steere 1995) the results are less clear. Some studies (Freeman et al. 1988 and Wolf and Crowther 1992) indicated that behavioural treatment was more effective in reducing symptoms than CBT. In other studies, (Thackwray et al. 1993; Yates and Sambrailo 1984) the reverse was found. The results of some of these studies are unclear because of low subject numbers and/or high drop out rates (Yates and Sambrailo 1984), and significant treatment overlap between groups (Freeman et al. 1988).

That CBT is an effective treatment for bulimia nervosa, both in terms of reducing specific behaviours and associated psychopathology, does not seem to be in question. However, what it is about CBT that makes it so effective is still unknown. Cooper and Steere (1995) pointed out, “It is not clear how CBT achieves its effects. The CBT package for bulimia nervosa is to some degree eclectic in that it contains a number of treatment strategies in addition to explicit cognitive techniques. In order to conclude

that cognitive restructuring is central to the success of treatment, it is necessary to demonstrate that these techniques...make a significant contribution to therapeutic outcome.” (p.875).

The following chapter reports on a study which attempted to identify those parts of Fairburn’s manual-based CBT that were significantly related to outcome in the treatment of bulimia nervosa.

CHAPTER 4

4.1 INTRODUCTION

Since the publication by Fairburn in 1985 of his comprehensive treatment manual of cognitive behavioural therapy for bulimia, its effectiveness as a treatment has been scrutinised and compared with other treatments. Results of these studies, which were discussed in Chapter 3, suggest that CBT is an effective treatment for bulimia, not only in terms of eliminating or reducing behavioural symptoms, such as bingeing and purging, but also in reducing the psychological distress, such as depression and body image distortion that are significant aspects of bulimia nervosa. However, it is still unclear precisely which elements of CBT are crucial in bringing about change in bulimic patients. Study two, reported in this chapter, aimed to tease out some of these crucial elements by examining the relative efficacies of parts of the total CBT “package”.

4.2 AIMS OF SECOND STUDY.

The second study had two aims. The first was to ascertain which parts of cognitive behavioural therapy are the most significant in reducing bulimic behaviours, such as bingeing and purging, and in reducing the disturbed attitudes towards body shape and weight that are symptomatic of bulimia nervosa. This was done by breaking down the CBT “package” into its two separate components, cognitive and behavioural treatments (both taken from Fairburn’s 1985 manual), and comparing them with full CBT (also based on the 1985 manual). These three treatments were also compared with no treatment via a wait list control.

The second aim of the study was to establish whether the above therapies, which were delivered in a group format in a shorter time (seven weeks) could be just as effective in

reducing the symptoms of bulimia as individually-delivered treatment over 18 weeks, as recommended in the original (1985) treatment manual. This is important given the importance of finding cost-effective treatments for bun, particularly when delivered in a public health system.

4.3 DESCRIPTION OF GROUPS.

There were three treatment groups. One group (N=18) received the traditional CBT as developed by Fairburn (1985). Briefly, all the elements of this treatment package were covered: self monitoring, education about body weight and the consequences of bingeing and purging, stimulus control, alternative behaviours, modifications of dietary patterns and content, exposure to anxiety-eliciting cues, problem solving, cognitive restructuring and relapse prevention. For a comprehensive description of the CBT package, see Chapter 3.

Another group (N=19) received a form of behavioural therapy (BT) taken from the full CBT manual. Treatment elements consisted of self monitoring, education about body weight and consequences of bingeing and purging, stimulus control, alternative behaviours, modifications of dietary patterns and content, exposure to anxiety-eliciting cues and relapse prevention.

The third treatment group (N=17) received cognitive therapy, also taken from the CBT manual. Treatment elements consisted of self monitoring (although this was done in a different way to that of the CBT and BT groups), examination of the “function” of bingeing and purging, problem solving, cognitive restructuring and relapse prevention.

Table 4.1 summarises the main features of each group.

The duration of the groups (seven weeks or 14 hours) was pragmatically decided upon in terms of the minimum amount of time needed to cover all elements of the CBT package.

Table 4.1 Comparison of the three forms of treatment**FEATURES IN COMMON**

Treatment structure (ie. number and frequency of treatment sessions)

Provision of a coherent treatment rationale

Monitoring of eating habits

DISTINCTIVE FEATURES**CBT BT CT**

Behavioural techniques designed to modify eating habits

+ + –

Education about physical consequences of bulimia

+ + –

Cognitive techniques designed to modify concerns
about shape and weight

+ – +

Examination of “function” of bulimic behaviour

+ – +

Training in problem solving

+ – +

Preparation for difficulties in the future

+ + +

All treatments were delivered in a group format. Treatment consisted of seven weekly sessions of two hours each and included self monitoring via daily eating diaries. For CBT and CT groups the diaries were alike and the same as that devised by Fairburn in his 1985 manual (p.170). In addition to information about eating habits and frequencies of bingeing and purging, group participants were required to provide information about relevant cognitions and feelings. In the case of the BT group participants, they were only required to provide information about their eating behaviours in their diaries. Examples of both types of diaries can be seen in Appendices B and C.

All treatments were conducted by one person (the writer) and comprehensive treatment manuals were followed strictly, using either Fairburn’s full CBT manual or the dismantled BT or CT parts (see Appendices D, E and F for copies of all three treatment manuals).

Treatment fidelity was checked by an independent rater experienced in both cognitive and behavioural therapies. Each treatment session was audiotaped (with the permission of participants) and segments from each session of both the BT and CT groups were transferred, in a random order, to a separate tape, which was then judged “blind” by

the independent assessor. The independent assessor's ratings of whether a segment was of cognitive or behavioural therapy was 100% accurate, thus indicating high treatment fidelity.

4.4 SELECTION OF SUBJECTS.

The sample consisted of a consecutive series of patients who were referred to the researcher by medical practitioners or school counsellors. All were assessed by the researcher who elicited biographical data from them and determined whether they met the following criteria for entry into the study;

1. Female and aged over 16 years. As bulimia is primarily a female complaint, it was decided to exclude males from participation in the groups. Also, the minimum age of 16 years was chosen because much previous research (Cooper and Fairburn, 1983; Fairburn, and Cooper, 1984) has indicated the majority of bulimic patients start bingeing and purging at about this age.
2. Fulfilled DSMIII-R criteria for a diagnosis of bulimia nervosa¹ including minimum bingeing and purging episodes per month.
3. Weight within normal limits (ie. a Body Mass index between 19 and 25). This was to exclude subjects who may have been suffering from eating disorders other than bulimia nervosa, such as anorexia or binge eating disorder.
4. Gave informed consent after the study had been fully explained. (See Appendix G for example of consent form).

In addition, the following exclusion criteria were applied:

1. Co-existing major psychiatric disorder. It was necessary to exclude people who were suffering from other major psychiatric disorders as the present study was

¹ DSM-IV is now used (see Chapter 1). As this study was commenced using DSMIII-R, this classification system was retained for reasons of consistency.

examining treatment efficacy only for bulimics, and Fairburn's treatment package was developed specifically for people suffering from bulimia. Bulimic patients may suffer from a range of secondary psychological problems, such as depression, anxiety, interpersonal problems and poor self esteem, and the CBT package is designed to incorporate some of these issues into treatment.

However, the package was not designed as a treatment for major psychiatric problems, such as primary depression or bipolar disorder.

2. Current physical dependence on alcohol or drugs, for the same reasons as point 1, above.
3. Need for hospitalisation, either because of the risk of suicide or because of poor physical health. It was necessary to exclude such patients because treatment was conceived as being, and was conducted, on an outpatient basis. However, inpatient treatment was available, if required, although it was not necessary during the course of the study.
4. On-going treatment from another source, to avoid contamination of treatment effects.
5. Not being available for the full course of treatment. It was important for patients to receive the full course of treatment so that an accurate comparison could be made between treatment groups.

A total of 54 patients were consecutively assigned by the researcher to one of the three treatment groups or to the wait list control group (N=20). It was not possible to assign patients to different groups on a random basis because of the small numbers of bulimic patients presenting for treatment at any point in time. After seven weeks (the duration of treatment) all WL subjects were offered treatment.

4.5. ASSESSMENT OF SUBJECTS.

a.) Assessment of Bulimic Symptomatology by structured diagnostic interview.

As the major selection criterion was that subjects had to be suffering from bulimia nervosa, this was rigorously assessed via a semi-structured clinical interview technique, the Eating Disorders Examination (EDE) (Edition 11.5D), (Cooper and Fairburn, 1987). (See Appendix H).

The EDE is a semi-structured interview which is designed to assess the full range of the specific psychopathology of eating disorders, including these patients' concerns about their shape and weight. The EDE provides the most comprehensive and discriminating assessment of the specific psychopathology of bulimia nervosa (Rosen & Srebnik, 1990) and has been validated in several studies (Cooper, Cooper and Fairburn, 1989; Rosen, Vara, Wendt and Leitenberg, 1990; Wilson and Smith, 1989).

The EDE consists of 30 questions about the respondent's eating habits, bingeing and purging, as well as concerns about weight gain and body shape over the past month. Items were initially selected for the interview schedule from a literature search and from material obtained from clinical interviews of eating disordered patients with the aim of eliciting detailed descriptions of their behaviour and attitudes. Having constructed a preliminary list of items to be included in the interview, each item was described in such a way as to help the interviewer make a rating. The pilot interview was then administered to four groups of subjects: anorexic patients, people suffering from bulimia nervosa, age-matched controls known to be concerned about their weight and shape and age-matched controls with no such concerns. At the time the present study was conducted, the interview schedule had gone through 11 revisions. In validating research (Cooper, et al., 1989) these items were found to discriminate well between those with eating disorders and controls.

The individual items were grouped into five subscales on the basis of similarity of content, representing the major areas of psychopathology of eating disorder. These were labelled “restraint”, bulimia”, “eating concern”, “weight concern”, and “shape concern”. Subsequent statistical analyses to assess their internal consistency and discriminant validity indicated a satisfactory degree of internal consistency for all subscales, (Cronbach alpha coefficients for each of the subscales respectively, calculated using a total N of 142 were, 0.75, 0.90, 0.78, 0.67, 0.79; Cooper et al., 1989).

The subscales and individual items are as follows:

“Restraint”, incorporating individual questions about: restraint over eating, avoidance of eating, avoidance of certain foods, dietary rules, desire for an empty stomach.

“Bulimia”, including items on: subjective loss of control, number of days binged per month, and frequency per day of binges, duration of binges and fullness afterwards.

“Eating concern”, including the following items: preoccupation with food and calories, fear of losing control, social eating, secret eating and guilt about eating.

“Shape concern”, with questions about the desire to have a flat stomach, preoccupation with shape, importance of shape, fear of fatness, dissatisfaction with shape, discomfort seeing body, avoidance of exposure and feelings of fatness.

“Weight concern”, including items on importance of weight, reaction to prescribed weighing, preoccupation with weight, dissatisfaction with weight and pursuit of weight loss.

Each question is scored from 0 to 6, with higher scores reflecting greater symptomatology. Totals and means can also be obtained for each of the five subscales.

To ensure reliability in the use of the EDE, the Researcher was trained in its administration and scoring by a qualified user.² Firstly, the researcher observed the trainer conduct an EDE interview and both of them rated the patient's answers independently, then the researcher was observed conducting an EDE interview with a different patient and responses were again scored separately. Secondly, a random selection of EDE interviews were taped at all stages of the study (i.e. pre-treatment, post-treatment, at four, eight and twelve month follow up) and were assessed by the trainer. Virtually total agreement was reached between the researcher and the independent trainer in terms of conduct of the interviews and accuracy of scoring.

b.) Assessment of bulimic symptomatology by questionnaire.

To assess specific bulimic symptomatology, the Eating Disorder Inventory (EDI, Garner, Olmsted and Polivy, 1983) was used. The EDI was chosen for this study for continuity with study one; and also because it has proved in past research (Fairburn et al., 1986, 1991, 1993, 1995; Garner et al., 1993; Wolf and Crowther, 1992; Freeman et al., 1988;) to be a reliable and valid measure of the main features of bulimia. The EDI is described in detail in Chapter 2 and a copy can be seen in Appendix A.

c.) Assessment of general psychopathology.

As depression is a significant feature of bulimia (Russell, 1979), the Beck Depression Inventory (BDI) was also completed by subjects. The BDI is a widely used, reliable and valid test of depression, and is often used in research into bulimia (Fairburn et al., 1986, 1991, 1993, 1995; Garner et al., 1993; Wilson et al., 1986, 1991; Kirkley et al., 1985).

² Dr. R. Griffiths, Senior Lecturer in Psychology at the University of Sydney, N.S.W., is a qualified user/trainer in the use of the EDE.

The Beck Depression Inventory (Beck, Ward, Mendelson, Mock, and Erbaugh, 1961)

is an 84 item scale measuring different aspects of depression. The items in the inventory were primarily clinically derived. Items are grouped into 21 categories, such as pessimism, sense of failure, social withdrawal, and crying spells. Numerical values from 0 to 3 are assigned to each statement, to indicate the degree of severity.

Reliability and validity have been assessed as high. Since its development in 1961, the Beck Depression Inventory has been widely used as a clinical tool, as well as research instrument in a number of areas, including bulimia.

For a copy of the Beck Depression Inventory, see Appendix I.

As an indicator of current moods, the Profile of Mood States (POMS) was also used. This questionnaire was chosen because it reflects current moods of respondents compared with long term personality traits, and because of its relative ease of administration and high validity and reliability.

The Profile of Mood States (Mc Nair, Lorr, and Droppleman, 1971) measures six mood or affective states: Tension-Anxiety; Depression-Dejection; Anger-Hostility; Vigour-Activity; Fatigue-Inertia and Confusion-Bewilderment. It consists of 65 five-point adjective rating scales of the above factors, which were derived from an original total of 100 different adjective scales by means of repeated factor analysis with approximately 2000 subjects.

To complete the POMS, respondents are asked to mark whether a particular adjective, representing a particular mood state, represents how they have been feeling over the past week; “not at all” to “extremely”. The purpose of the one week rating period is to emphasise a period both sufficiently long to depict the respondent’s typical and persistent mood reactions to his current life situations and sufficiently short to assess

acute treatment effects. Thus, the POMS attempts to measure subjective states, rather than enduring personality traits.

The six factors consistently derived by repeated factor analysis are:

Tension-Anxiety, defined by adjective scales descriptive of somatic tension which may not be overtly observable (e.g. tense, on edge), as well as observable psychomotor manifestations (e.g. shaky, restless) as well as other adjectives such as nervous and anxious.

Depression-Dejection, a factor representing feelings of worthlessness, futility, a sense of emotional isolation from others, sadness and guilt.

Anger-Hostility, a factor covering a range of hostile emotions, such as grouchy, resentful, and deceived.

Vigour-Activity, this factor is defined by adjectives suggesting a mood of vigourousness and high energy, such as, alert, full of pep, cheerful, and so on.

Fatigue-Inertia, representing a mood of weariness and low energy level, and is reflected in adjectives such as, worn-out, sluggish and listless.

Confusion-Bewilderment, this factor is represented by adjectives such as; confused, unable to concentrate and forgetful.

A series of reliability studies indicated high internal and test-retest reliabilities for the above factors (McNair and Lorr, 1964).

Concurrent validity was also high, when assessed against similar tests, such as the Hopkins Symptom Distress Scales (HSCL-D) (Parloff, Kelman and Frank, 1954), the Taylor Manifest Anxiety Scale (MAS) (McNair et al., 1971), the Beck Depression Inventory (BDI), and the MMPI-2 (Bowler, Mergler, Schwarzer, Bowler and Rauch). For a copy of POMS, see Appendix J.

4.6 RESULTS.

a.) Attrition Rates.

No participants dropped out of active treatment, and all completed pre and post-treatment assessments. However, for various reasons, such as moving away and travelling overseas, some dropped out at various stages of the follow up period.

CBT - 2 drop-outs (11%) one after treatment and another after completing a four month follow up assessment.

BT - 5 drop-outs (26%) three after the four month follow up and two post-treatment.

CT - 5 drop-outs (29%) two after treatment and three after the four month follow-up.

This extremely low attrition rate (0% during treatment) compares favourably with other comparative treatment studies. In a survey of attrition rates during treatment, Garner, Fairburn and Davis, (1987) found the median attrition rates during group treatment to be 29.3%. In the present study even the attrition rates during follow up are no greater than those reported by similar studies during treatment.

Table 4.2 Clinical characteristics of sample

Compared with a similar sample(Fairburn et al., 1991)

	CBT	BT	CT	WL	Fairb.
(MEANS)	N = 18	N = 19	N = 17	N = 20	N = 75
Age	21.56	24.21	23.64	23.45	24.20
BMI	21.72	21.47	24.30	22.73	22.20
Duration of bulimia (yrs)	3.80	5.03	5.28	6.58	4.40
F. binge (per mth)	36.83	51.84	54.23	32.75	23.70
F. vomit (per mth)	31.22	47.42	50.82	21.80	28.90
BDI	23.27	25.10	21.94	28.10	24.00

The above table indicates that participants in the present study do not differ in demographic characteristics from patient groups typically reported in the Fairburn group of studies, of which one example is given above.

b.) Pre-treatment Analyses.

Individual one way analyses of variance (ANOVAs) were conducted to identify pre-treatment differences on demographic measures (age, duration of bulimia, BMI), behavioural variables (binge and purge frequency and restraint) and psychological variables (EDI, BDI, EDE, POMS scores). Probability levels for all analyses were .05 unless otherwise specified. Student-Newman-Keuls tests were used for all follow up analyses unless otherwise specified. No significant pre-treatment differences between groups were found on any demographic variable or behavioural variable, apart from the following five variables;

Three items from the Overeating scale of the EDE and the total EDE Overeating score.

One item from the Restraint scale of the EDE. These items were analysed by repeated measures analysis of covariance (MANCOVA). This revealed no significant time or group treatment effects. Because these results were not statistically significant, they are not presented here, but results can be seen in Appendix K.

c.) Success of Treatment.

In the present study, this was defined in two ways:

Whether patients are “abstinent” from bulimic behaviours both at the end of treatment and at 12 month follow up. (See research of Fairburn et al. 1991; 1993; Table 3.1).

Whether patients no longer meet DSM III-R criteria for a diagnosis of bulimia nervosa, after treatment and at 12 month follow-up. Both were assessed by the EDE structured interview and the self report inventories.

Table 4.3 Percentages of patients who no longer meet DSM III-R criteria for bulimia nervosa

	POST TREATMENT	12 MONTHS*
CBT	13/18 (72%)	13/18 (72%)
BT	10/19 (52%)	9/19 (47%)
CT	7/17 (41%)	10/17 (58%)

*These figures include subjects who dropped out of follow-up. For the purposes of these figures they are assumed to be treatment "failures".

The above table indicates that patients who received full CBT were least likely to receive a diagnosis of bulimia nervosa both at the end of treatment and at 12 month follow up. patients in the BT group were more likely to be successful initially, as indicated by the post treatment results, but their success was slightly less well-maintained. In contrast, patients in the CT group were the least successful initially, as indicated by the post treatment results, but their success was slightly less well-maintained. In contrast, patients in the CT group were the least successful in reducing bulimic symptomatology after treatment, but appeared to improve over time, as indicated by their 12 month follow-up results.

Table 4.4 below indicates how the above results compare with those obtained in other studies (summarised in Table 3.2).

Table 4.4 Percentages of patients abstinent from bingeing and vomiting

	BINGE		VOMIT	
	Post	12 mths	Post	12 mths
CBT	10/18(55%)	10/18(55%)	8/18(44%)	7/18(38%)
BT	3/19(15%)	1/19(5%)	4/19(21%)	4/19(21%)
CT	6/17(35%)	3/17(17%)	4/17(23%)	1/17(5%)

The above results indicate that all active treatments were successful in ending the prime bulimic behaviours of bingeing and vomiting, and that these improvements were well maintained over the follow-up period, with no additional treatment in the interim (as reported by respondents).

The above abstinence rates were not as high as some reported using individual CBT (Fairburn et al., 1991, who reported 71% abstinent from bingeing and 47% abstinent from vomiting after 18 weeks of individual therapy. The rates obtained do compare well, however, with longer term results such as those found by Wilson et al. 1991, where an abstinence rate was obtained of 36% for bingeing and 4% for vomiting, 12 months after 20 weeks' individual CBT.

Some of the studies listed in Table 3.2 report reduction rates of bingeing and vomiting. Table 4.5 below lists percentage of patients in each group who reduced their frequencies of bingeing and vomiting by any amount, plus those who ceased bingeing and vomiting altogether.

Table 4.5 Percentages of patients who ceased/reduced frequencies of bingeing and vomiting

	BINGE		VOMIT	
	Post	12 mths	Post	12 mths
CBT	16/18(88%)	13/18(72%)	15/18(83%)	14/18(77%)
BT	14/19(73%)	7/19(36%)	15/19(78%)	9/19(47%)
CT	13/17(76%)	10/17(58%)	13/17(76%)	10/17(58%)

The above table indicates that group CBT was better than CT or BT in reducing frequency of bingeing and vomiting both at the end of treatment and at 12 month follow-up. The above results compare favourably with results obtained in similar studies listed in Table 3.3. For example, Wolf and Crowther (1992), using group CBT and group BT, lasting eight weeks, obtained 44% and 48% reductions (respectively) in the number of patients who binged and 44% and 46% reductions in the number who vomited.

d.) Statistical analyses of treatment effectiveness.

1. To see if there were significant pre-treatment differences between groups prior to treatment, one-way ANOVAs were performed.

2. To assess of the time and treatment effects on those variables where there were significant pre-treatment differences, MANCOVAs were performed.(see p.131).
3. To assess the time and treatment effects on those variables where there were no significant pre-treatment differences, MANOVAs were the most appropriate statistical method.
4. Because of the drop-out rate of respondents during the follow-up period, neither MANCOVAs nor MANOVAs could not be utilised. Therefore a series of ANOVAs were performed at each assessment point (ie. 4, 8 and 12 months follow-up) to assess the significance of group differences on each variable.

To examine the precise nature and the significance of the change for all variables and see if there were differences between treatment groups over time, the following statistical analyses were performed:

With the exception of the repeated measures MANCOVA performed on the EDE Mean Overeating score, the remaining variables were subjected to four more (i.e. after the pre-treatment ANOVAs) one way analyses of variance at each stage, post treatment, and 4, 8 and 12 month follow-ups.

N.B. The control group was measured only twice, pre and post-treatment

To examine the group by time differences, a series of repeated measures MANOVAs was performed between all groups (4), at two times, pre and post-treatment.

Repeated measures MANOVAs could not be performed at the follow-up times because the reduction in subject numbers reduced the power of the test.

d.) Behavioural Variables.

Table 4.6. Frequency of Bingeing per Month

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	36.83	26.98	4.94	6.36	1.49	1.81	1.28	1.68	0.89	1.71
BT	51.84	46.25	20.10	30.43	3.28	3.577	3.83	1.06	4.12	3.21
CT	51.84	46.25	17.29	27.56	2.72	3.20	3.45	0.95	3.56	2.98
WL	42.95	36.63	39.85	32.52						

Although the above table indicates that, prior to treatment, the CBT group was, on average, bingeing less often than the other groups, the differences between groups were not statistically significant. It is possible, that this may have had an unknown effect on outcome (in this variable) that was not picked up in the statistical analysis.

At the end of treatment the one-way ANOVA indicated a significant difference between all three treatment groups and the control group ($F=6.56$, $p<.01$). The three treatment groups did not differ significantly from each other.

The MANOVA result indicated significant time ($F=73.35$, $p<.0001$) and group effects ($F=5.77$, $p<.001$).

At four months' follow up, there was no significant difference between any treatment group.

At eight months, the CBT group was bingeing significantly less often than either the CT or BT groups ($F = 4.51$, $p<.05$).

At 12 months the CBT group was bingeing significantly less often than either CT or BT groups ($F = 6.22$, $p<.01$).*

*All statistical tables can be found in Appendix K.

These results are illustrated in fig.4.1.

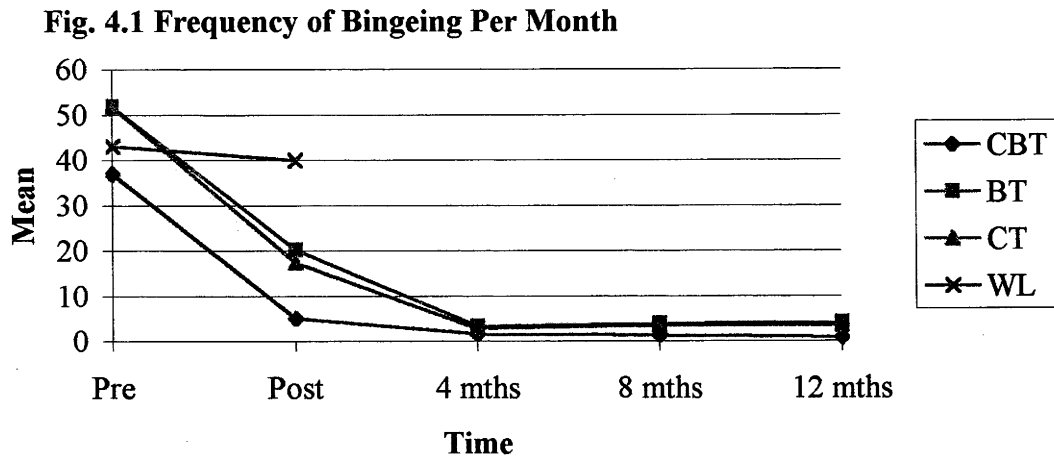


Table 4.7. Frequency of Vomiting per Month

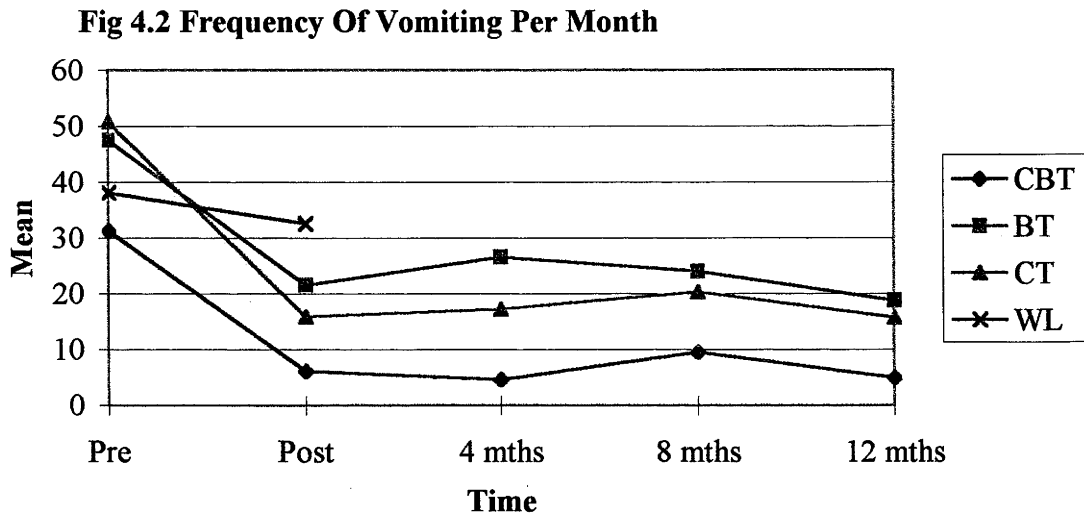
Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	31.22	35.67	6.11	9.27	4.62	6.33	9.56	20.93	5.00	7.63
BT	47.42	45.22	21.47	32.15	26.50	48.10	24.00	42.58	18.76	29.23
CT	50.82	49.65	15.82	20.51	17.20	26.42	20.30	27.98	15.72	17.37
WL	38.10	43.85	32.55	39.85						

As can be seen from the above table, the CBT group had a lower mean frequency of vomiting before treatment, however, there were no significant differences between groups in this factor. It is possible, that this may have had an unknown effect on outcome (in this variable) that was not picked up in the statistical analysis

Repeated measures MANOVA indicated a significant time effect, pre to post treatment ($F=46.21$, $p<.001$) but not a significant group by time effect ($F=1.94$, $p<.13$).

One-way ANOVA performed on the end of treatment results indicated that only patients who received full CBT were vomiting significantly less frequently than patients in the control group ($F=2.81$, $p<.05$).

Patients in both the CT and BT groups were vomiting less frequently than the control patients, but not significantly so, as can be seen by Figure 4.2 below.



This figure also indicates that all three treatment groups maintained this improvement during the follow-up period. CBT patients were vomiting least frequently, followed by CT patients, with BT patients doing less well in this area. However, the differences between the groups at each of the follow up points were not statistically significant.

Table 4.8 Frequency of Laxative use per month

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	0.68	1.17	0.71	1.42	0.41	0.78	0.52	0.98	0.43	0.89
BT	1.16	2.36	0.72	1.58	0.79	1.52	0.86	1.58	0.62	0.99
CT	0.66	1.91	0.13	0.30	0.03	0.30	0.16	0.47	0.66	1.61
WL	0.94	2.42	1.00	1.46						

There was no significant difference between any treatment group or control in frequency of laxative use at the end of treatment or at any stage over the follow up period. This was probably due to the relatively low use of laxatives by all patients in this study.

Table 4.9 Frequency of exercise (occasions per month)

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	17.72	10.13	17.44	10.68	12.31	9.74	13.06	9.91	10.37	7.33
BT	11.68	10.85	10.84	9.82	11.93	10.16	9.38	9.63	9.38	9.63
CT	9.76	11.53	7.10	12.40	8.53	11.89	5.30	9.62	8.72	10.88
WL	17.60	10.73	17.10	12.40						

Before treatment, no groups differed significantly from each other in frequency of exercise.

At the end of treatment, only the CT group was exercising significantly less often than the control group ($F = 3.39$, $p < .05$).

At no stage during the follow-up was there a significant difference between groups in frequency of exercise.

e.) EDE Variables.

The Restraint Dimension (consisting of five separate questions).

On four of the five questions there were no significant pre-treatment differences between groups. On one item (having strict rules about eating) there was a significant pre-treatment difference, and the results were analysed by repeated measures analyses of covariance (MANCOVA), which was not significant.

The remaining four questions were analysed with separate analyses of variance (ANOVAs) at the end of treatment and at each of the follow up times and with repeated-measures MANOVAs. Only the questions where there were significant results will be discussed here.

Question 1. Over the past four weeks have you been consciously trying to restrict what you eat whether or not you have succeeded?

Table 4.10 Restriction on amount eaten.³

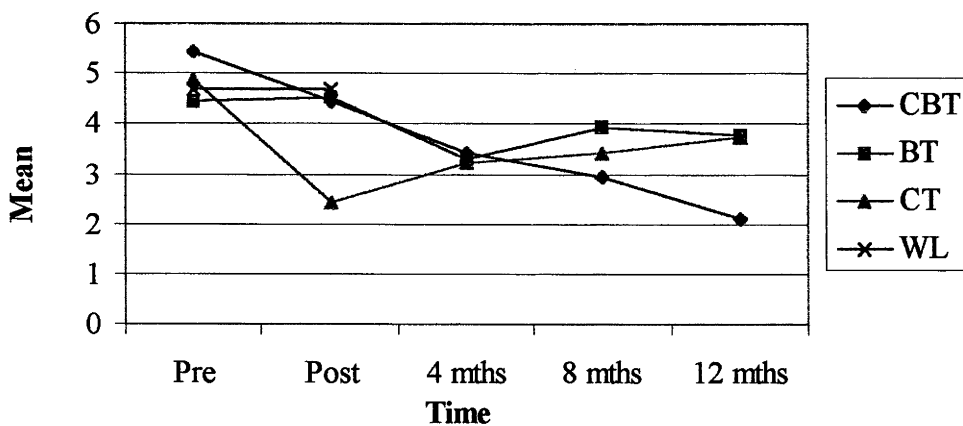
Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	5.44	1.19	4.44	1.88	3.43	2.25	2.93	2.29	2.12	2.27
BT	4.47	2.54	4.52	2.31	3.31	2.70	3.92	2.53	3.76	2.45
CT	4.88	2.34	2.41	2.69	3.20	2.56	3.40	2.56	3.72	2.53
WL	4.70	2.27	4.70	2.45						

Prior to treatment there was no significant difference between any group on this EDE score.

Repeated-measures MANOVA indicated both significant time and group by time effects in this score, ($F=7.41$, $p<.01$; $F=3.12$, $p<.05$ respectively.)

At the end of treatment CT patients were obtaining significantly lower scores in this question than patients in any other group, (one-way ANOVA; $F=3.68$, $p<.05$.)

However, during follow-up, there were no significant differences between any group.

Fig. 4.3 Restriction on Amount Eaten

³ All EDE scores (apart from totals) are scaled from 0 to 6, the higher the score, the greater the pathology.

Question 4. Avoidance of “bad” foods.

Table 4.11 Scores on EDE Avoidance of foods.

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.61	2.06	4.11	2.37	3.31	2.24	1.87	2.24	1.81	2.25
BT	4.73	2.13	3.36	2.43	2.87	2.36	3.38	2.21	3.30	2.17
CT	4.11	2.36	2.32	2.30	2.46	2.55	2.61	2.63	2.45	2.54
WL	5.10	2.07	4.45	2.18						

Before treatment, there were no significant differences between groups.

Repeated-measures MANOVA indicated a significant time effect only

($F=10.86, p<.002$).

The one-way ANOVA performed at the end of treatment indicated that only the CT group differed significantly from the WL ($F=3.19, p < .05$).

There were no significant differences between groups at any stage during follow up.

The Total Restraint Score (the sum of all five items).

Table 4.12 Total EDE Restraint Score.

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	22.66	10.83	13.83	6.09	10.50	6.88	9.37	8.31	6.75	6.88
BT	19.00	7.85	14.63	8.13	12.62	11.05	13.84	10.17	13.38	9.64
CT	14.41	5.40	7.76	6.51	9.73	7.62	11.00	8.44	10.09	9.35
WL	19.75	8.40	16.70	7.79						

There was no significant difference between groups at the beginning of treatment.

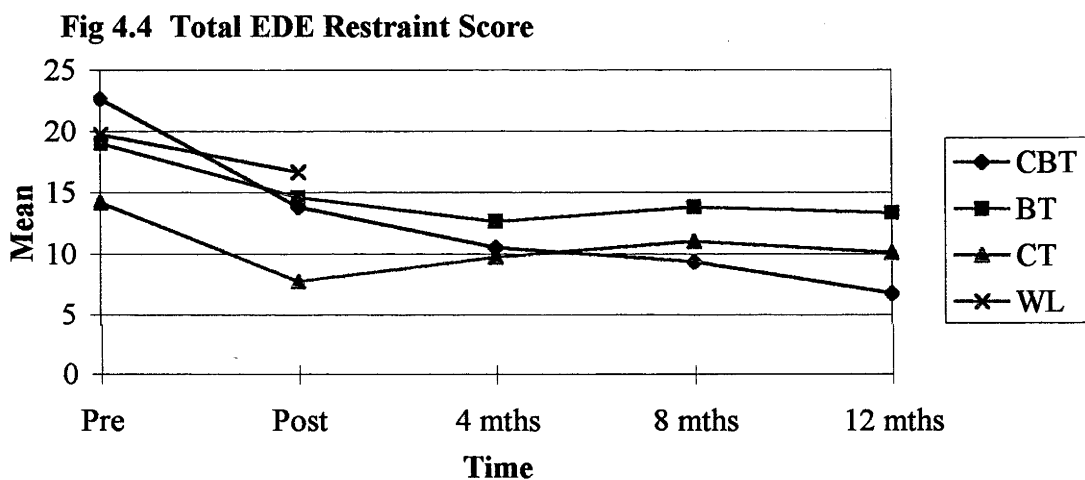
Repeated measures MANOVA indicated a significant time effect only ($F=31.31, p<.0001$).

Post-treatment one-way ANOVA was significant ($F=4.96, p<.01$). Student-Newman-Keuls test indicated that the CT group differed significantly from both CBT and BT as well as the control group). Patients in the other two treatment groups were less

restrained than the control group at the end of treatment, but not enough to be statistically significant

The above table indicates that the advantage of CT over the other treatments in terms of reducing dietary restraint had disappeared at four months' follow-up. Examination of figure 4.4 indicated that CT performed better than full CBT, which in turn performed better than BT, but no two groups differed significantly at the .05 level.

This picture was repeated at eight and 12 months follow-up.



The Overeating Dimension (consisting of seven different questions).

In three questions, as well as in the total Overeating score, there were significant pre-treatment differences. These were analysed via MANCOVAs and there were no significant time or group effects.

The rest of the questions were analysed with a series of ANOVAs at each assessment time and with repeated-measures MANOVAs pre and post-treatment.

Question 1. Subjective loss of control.

This question is designed to assess respondents' feeling that they have lost control over their eating.

Table 4.13 EDE Subjective Loss of Control

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	3.38	2.40	0.88	1.13	1.62	2.27	0.81	1.22	0.62	1.14
BT	3.63	2.29	2.31	2.18	2.18	2.34	2.76	2.77	2.69	2.78
CT	4.00	1.90	1.11	1.57	2.06	2.37	2.30	2.35	2.36	1.85
WL	4.15	1.89	4.15	1.89						

There were no significant pre-treatment differences between groups in this question.

Repeated measures MANOVA (pre-post) indicated both a significant time effect

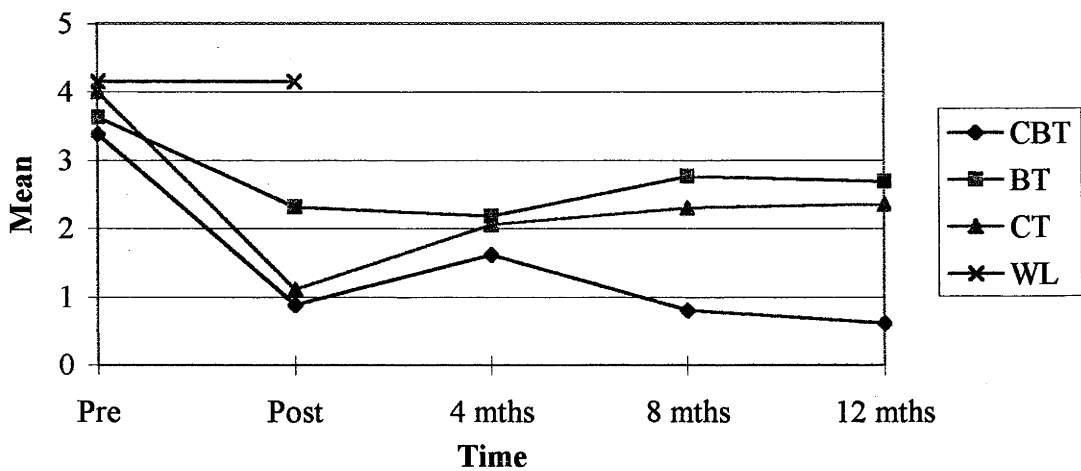
($F=54.33$, $p<.0001$); and group by time effect ($F=8.34$, $p<.0001$). These results are

clarified by the after treatment one-way ANOVA results ($F = 13.72$, $p<.01$); CBT<BT and WL; CT<BT and WL; BT<WL.

At four months there were no significant differences among groups.

At eight months, there was a significant group effect ($F = 3.31$, $p<.05$). Although no two groups were significantly different from each other at the .05 level, examination of the above table indicates that the CBT group achieved lower scores than the other two groups.

At 12 months, the CBT group scored significantly lower than the other treatment groups ($F = 4.51$, $p<.05$). These results are illustrated in Figure 4.5.

Fig. 4.5 EDE Subjective Loss of Control

Question 2. Number of days where there were objective bulimic episodes.

This question asks respondents to estimate the number of days in the past month where they binged. The word “objective” is used to indicate that an objectively large amount of food was consumed, rather than an amount that the respondent thinks is large, but which could not be described as large by a non-bulimic person. This particular question is covered by the item “subjective bulimic episodes”.

Table 4.14 Objective Bulimic Episodes (days).

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	1.85	0.60	0.77	1.43	0.87	1.74	0.62	1.25	0.43	1.50
BT	1.56	0.89	1.47	1.83	1.56	2.25	2.61	2.84	2.15	2.73
CT	1.84	0.66	1.76	2.04	1.93	2.37	2.15	2.15	1.90	1.44
WL	1.80	0.63	4.00	1.91						

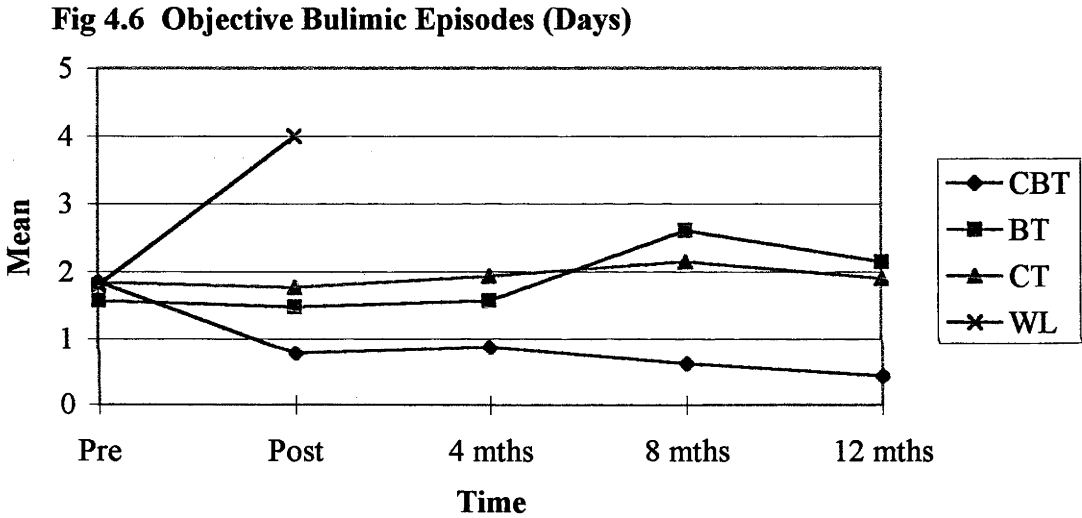
MANOVA results indicate significant time effect ($F=60.05$, $p<.0001$) and group by time effect ($F= 12.03$, $p<.0001$). This result is confirmed by the following one-way ANOVA results.

At the end of treatment all treatment groups differed significantly and separately from the control group ($F= 11.30, p<.0001$). The treatment groups did not differ significantly from each other.

There was no significant difference between groups at four months.

At eight months there was a significant group effect ($F = 3.31, p<.05$) but no two groups differed from each other at the .05 level.

At 12 months the CBT group was scoring less on frequency of objective bingeing than either BT or CT ($F = 4.51, p<.05$). These trends are reflected in Figure 4.6.



Question 6 Duration of binge, in minutes, ranging from 0 minutes (scoring 0) to 180 minutes or more (scoring 6).

Table 4.15 Duration of binge

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	3.77	1.47	1.50	1.88	1.75	1.84	1.75	2.32	1.00	1.82
BT	3.78	1.58	3.26	1.52	2.43	2.03	2.84	2.23	2.84	2.23
CT	3.35	1.53	2.00	1.65	1.66	2.02	2.46	2.25	2.72	2.19
WL	3.40	1.60	4.50	1.76						

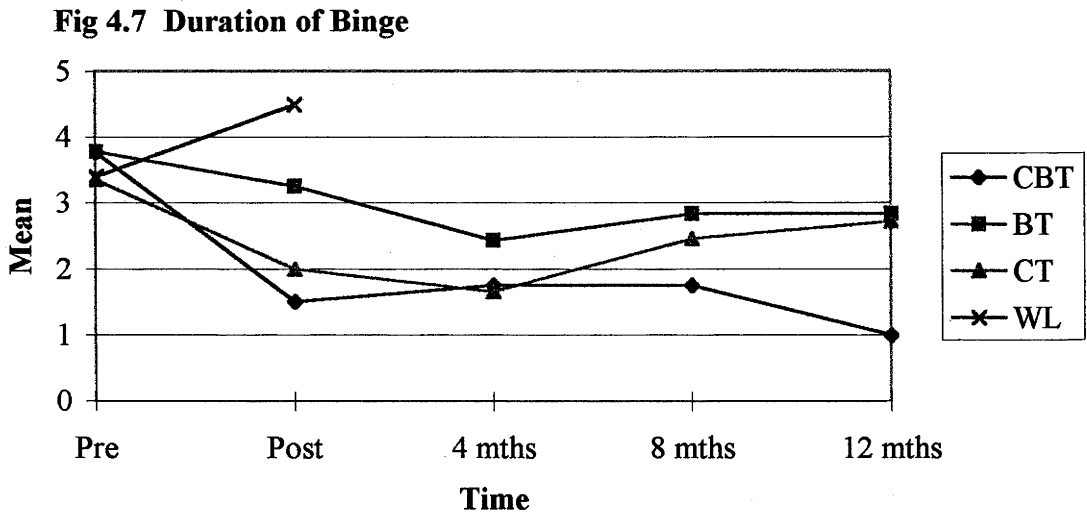
There were significant time and group by time effects (pre-post) as measured by repeated-measures MANOVA ($F=21.25$, $p<.0001$; and $F=10.99$, $p<.0001$, respectively).

One-way ANOVAs indicated the following results.

At the end of treatment duration of binge for the CBT group was significantly less than for BT and WL. In addition duration of binge for CT was significantly shorter than for BT and WL. The CBT and CT groups did not differ significantly from each other ($F=8.70$ $p<.01$).

At four and eight month follow-ups, the treatment groups did not differ significantly from each other.

At 12 months there was a significant difference between CT and CBT only, with CBT less than CT ($F=3.62$, $p<.05$). The BT group appeared, from the above table and from figure 4.7 below to have a similar score to the CT group.



Question 7 relating to perceived fullness after bingeing. In this question, the higher the score, the greater the degree of perceived fullness after eating.

Table 4.16 Fullness after bingeing

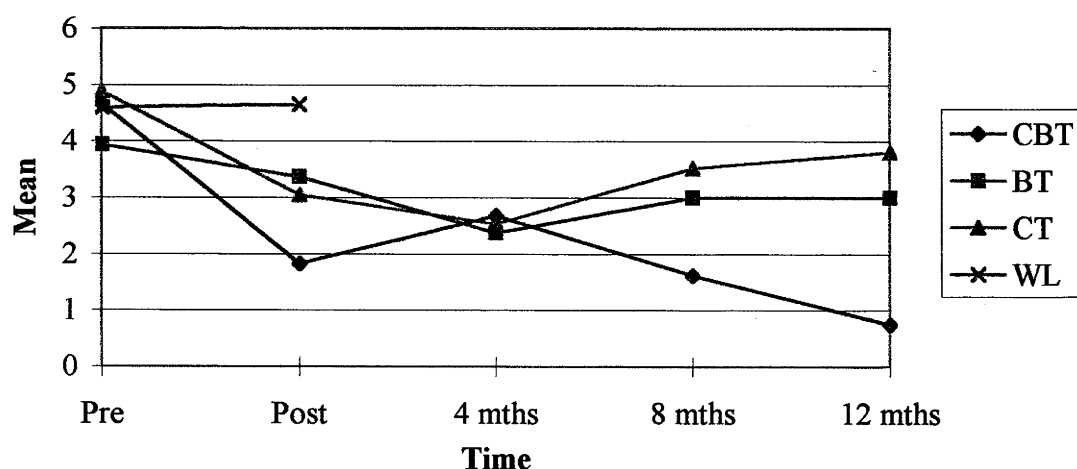
Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.66	1.57	1.83	2.06	2.68	2.60	1.62	2.06	0.75	1.43
BT	3.94	2.32	3.36	1.89	2.37	2.24	3.00	2.38	3.00	2.38
CT	4.88	1.86	3.05	2.43	2.53	2.79	3.53	2.87	3.81	2.71
WL	4.60	1.90	4.65	1.95						

Repeated measures MANOVA indicated a significant pre-post time effect ($F=26.24$, $p<.0001$) and group by time effect ($F=6.57$, $p<.001$).

One-way ANOVAs indicated that after treatment all treatment groups experienced a reduction in perceived fullness, but only the CBT group differed significantly from the control group ($F=5.83$, $p<.01$).

There were no significant differences between groups at four and eight months, but at 12 months CBT again had a significantly lower score than both CT and BT groups, ($F=7.51$, $p<.01$). This can be seen in figure 4.8.

There was a significant pre-treatment difference between groups in total Overeating score, hence the results were treated with a MANCOVA. The results indicated no significant time or group effect on this variable.

Fig 4.8 Fullness After Bingeing

There was a significant pre-treatment difference between groups in total Overeating score, hence the results were treated with a MANCOVA. The results indicated no significant time or group effect on this variable.

The third group of EDE questions fall within the Eating Concern dimension, consisting of five items. Only the four questions which produced significant results are discussed below.

Question 1, measuring preoccupation with eating, to the extent that the respondent finds she is unable to concentrate on other tasks. Scores range from 0 to 6, the higher the score, the greater the preoccupation.

Table 4.17 EDE Preoccupation with Eating

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.77	2.01	2.27	2.02	1.87	2.21	1.81	1.97	2.37	2.66
BT	4.26	2.40	2.84	2.79	3.00	2.65	3.53	2.40	2.23	2.31
CT	4.94	2.04	2.82	2.50	2.53	2.50	3.30	2.32	2.36	2.20
WL	5.00	1.62	5.00							

Pre-post MANOVA indicated a significant time effect ($F=27.68$, $p<.0001$) and group by time effect ($F=3.82$, $p<.05$).

After treatment all three treatment groups were separately and significantly different from the control group ($F= 5.25$, $p<.01$), as measured by one-way ANOVA. However, the differences between treatment groups later disappeared during the follow-up period.

Question 2, relating to fear of losing control over eating. This is different to the question “experience of loss of control” in the Overeating section. The present question relates to a person’s fear that they may lose control.

Table 4.18 EDE Fear of Loss of Control

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.33	2.16	2.22	2.10	2.37	2.33	1.43	1.86	1.06	1.56
BT	4.31	2.05	2.47	2.31	2.62	2.70	2.92	2.66	2.92	2.66
CT	4.52	2.15	1.88	1.88	2.26	2.49	2.76	2.61	3.00	2.14
WL	4.75	1.77	5.20	5.20						

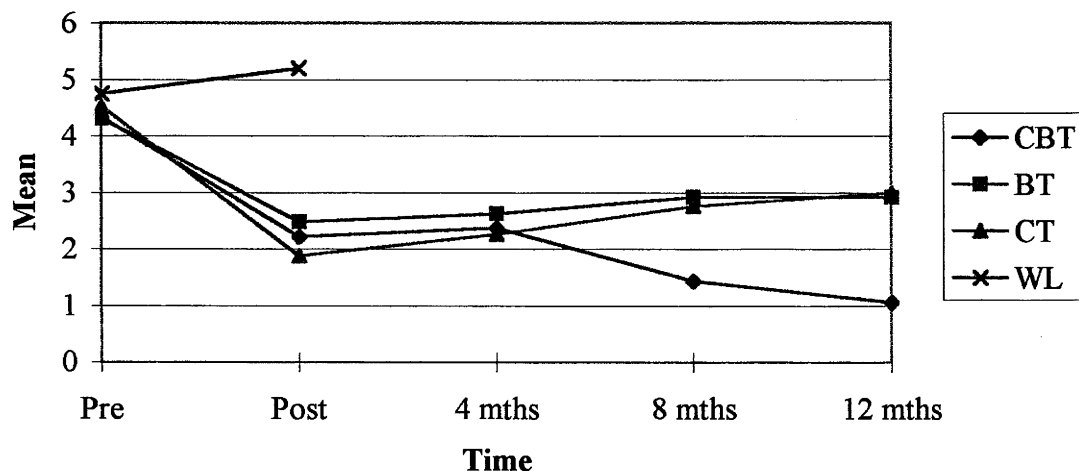
Pre-post MANOVA results indicated a significant time effect ($F=30.12$, $p<.0001$) and group by time effect ($F=6.18$, $p<.001$).

One-way ANOVAs indicated that after treatment all groups were separately and significantly different from the control group ($F=10.07$, $p<.01$),

CBT<WL;CT<WL;BT<WL.

There were no significant differences between groups at four and eight months.

At 12 months CBT patients were significantly less afraid of losing control of their eating than the other two groups ($F=3.80$, $p<.05$), as indicated in the following figure.

Fig 4.9 EDE Fear of Loss of Control

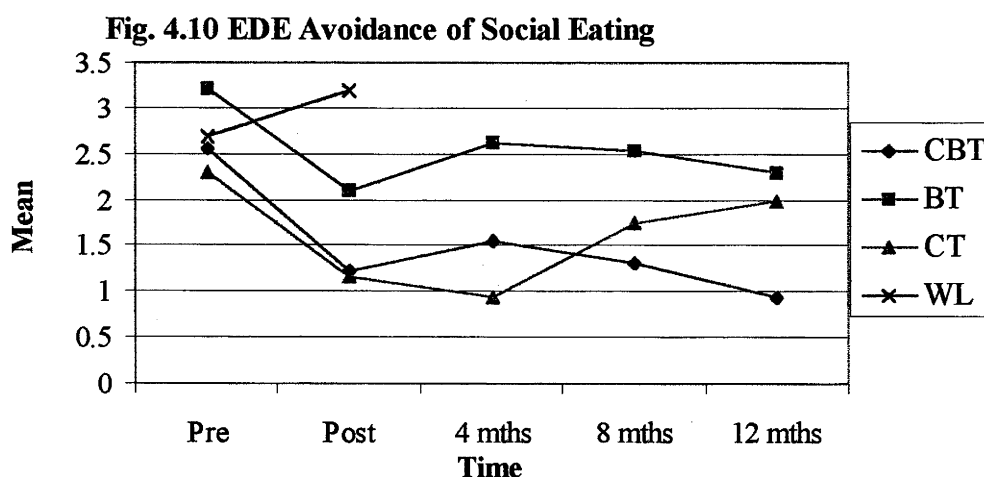
Question 3, which measures anxiety about, and avoidance of eating in front of others.

Table 4.19 EDE Avoidance of Social eating

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	2.55	1.72	1.22	1.59	1.56	2.09	1.31	1.92	0.93	1.23
BT	3.21	2.12	2.10	2.23	2.62	2.39	2.53	2.50	2.30	2.28
CT	2.29	2.17	1.17	2.00	0.93	1.53	1.76	2.16	2.00	2.14
WL	2.70	2.10	3.20	2.39						

Pre-post MANOVA reveals a significant time effect only ($F=8.31$, $p<0.05$).

One-way ANOVA indicates that after treatment only the CT and CBT groups were separately and significantly different from the WL group in social avoidance of eating ($F=3.91$, $p<.01$). The CBT and CT groups did not differ significantly from each other in this variable. There were no significant differences between groups during follow up. Thus patients who received either cognitive, or cognitive-behavioural therapy were less concerned about eating in public after therapy, and remained so during follow up. BT patients did experience a slight reduction in this variable during treatment, but the difference was not strong enough to reach statistical significance, and not enough to differentiate it from the control group.



Question 4, about the frequency of secret or furtive eating, which typifies bingeing.

Table 4.20 EDE Frequency of Secret Eating

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.11	2.19	1.33	1.90	2.50	2.33	1.12	1.82	1.25	1.73
BT	2.63	2.47	1.52	1.77	1.56	1.75	1.76	2.24	1.76	2.24
CT	2.88	2.82	1.05	1.67	1.46	2.06	1.46	2.22	1.81	1.99
WL	3.65	2.36	3.00	2.49						

MANOVA results indicate a significant time result only ($F=30.32$, $p<.0001$).

One-way ANOVAs indicate that frequency of secret eating was significantly reduced for all treatment groups, compared with the control group ($F = 3.59$), $p<.01$; $CT<WL$; $CBT<WL$; $BT<WL$. However there were no significant differences between groups during follow-up.

Total EDE Eating Concern Scale. This is the total of five items, and measures a general concern about eating.

Table 4.21 EDE Total Eating Concern Score

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	20.38	6.86	8.38	6.43	10.68	9.93	7.81	6.92	6.31	4.37
BT	18.42	7.66	11.63	8.46	12.56	10.15	13.30	10.91	12.76	10.44
CT	18.47	6.98	8.94	8.82	9.93	10.02	12.53	10.31	12.18	9.93
WL	18.50	6.61	18.45	6.85						

Pre-post MANOVA indicated a significant time effect ($F=64.76$, $p<.0001$) and group by time effect ($F=8.87$, $p<.0001$).

At the end of treatment, one-way ANOVA indicated that all treatment groups separately had significantly lower total eating concern scores than the control group ($F=6.93$, $p<.01$). However at 12 months follow-up, while the CBT group had the lowest score, the differences between treatment groups were not statistically significant.

The fourth group of eight questions measure the dimension of Shape Concern.

The first question measures degree of dissatisfaction with shape.

Table 4.22 EDE Dissatisfaction with Shape.

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.00	1.81	2.38	2.03	2.56	2.15	2.18	1.97	2.12	1.89
BT	3.57	2.06	2.78	2.12	2.75	2.32	3.46	2.56	3.30	2.46
CT	4.29	1.35	2.88	2.17	2.73	2.18	3.00	2.48	2.54	2.50
WL	4.40	1.93	4.70	1.92						

MANOVA results indicate both significant time ($F=12.85$, $p<.001$) and group by time ($F=3.19$, $p<.05$) effects.

One-way ANOVAs indicate that after treatment, all three treatment groups had significantly lower shape concern scores than the control group ($F = 4.84$, $p<.01$).

During follow-up the CBT score had a lower score than the other two groups, but the difference was not statistically significant.

The second Shape Concern question measures preoccupation with shape, which means how much time is spent thinking about shape, at the expense of other activities.

Table 4.23 EDE Preoccupation with Shape

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.11	2.37	2.16	2.70	1.75	2.38	1.75	2.49	1.68	1.62
BT	3.52	2.75	2.21	2.52	2.93	2.32	3.53	2.06	3.38	1.93
CT	4.35	2.47	1.58	1.93	2.20	2.30	2.53	2.29	2.54	2.11
WL	4.65	2.23	5.15	1.59						

Pre-post MANOVA indicated that there was a significant time effect ($F=23.05$, $p<.00$) and time by group effect ($F=5.94$, $p<.004$).

One-way ANOVAs indicated that post treatment all treatment groups had significantly lower preoccupation scores than the control group ($F = 9.98, p < .01$). During follow-up, the CBT group continued to have the lowest scores, followed by the CT group, with the highest score being obtained by the BT group, however, these differences were not statistically significant.

The third question measures importance of shape. In this question, respondents are asked how important is shape to them when compared with other factors, such as friendship, achievement and family relationships.

Table 4.24 EDE Importance of Shape

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	5.11	1.13	2.88	2.02	3.68	1.88	2.87	2.20	2.81	1.72
BT	4.63	1.60	3.52	1.83	3.37	2.15	4.30	1.75	4.23	1.69
CT	4.70	1.82	2.64	2.05	2.73	2.28	3.00	2.51	2.72	2.32
WL	4.95	1.57	5.15	1.66						

Pre-post MANOVA indicated both significant time and group by time effects ($F=33.03, p<.0001$ and $F=4.94, p<.0001$ respectively).

After treatment all three treatment groups believed that shape was less important in their lives than the control group ($F = 5.65, p < .01$). During follow-up, both the CBT and CT groups were achieving the lowest scores in this variable, but not enough to reach statistical significance.

The fourth question measured a variable called fear of fatness. This item measures the number of days per month where there is a definite fear of gaining weight or becoming fat.

Table 4.25 EDE Fear of Fatness Scale

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.77	2.18	2.16	2.20	3.12	2.50	2.31	2.24	2.75	2.20
BT	5.68	1.15	4.15	2.40	3.87	2.41	3.84	2.19	3.84	2.19
CT	5.64	1.45	2.58	2.42	2.06	2.34	2.30	2.56	2.27	2.64
WL	5.30	1.65	5.75	1.11						

Pre-post MANOVA indicates that there was a significant time effect ($F=46.54$, $p<.0001$) and group by time effect ($F=10.78$, $p<.0001$).

One-way ANOVAs indicated that at the end of treatment there were significant differences between the treatment groups and the control group ($F=11.57$, $p<.01$).

Post-treatment $CBT<BT\&WL$; $CT<BT\&WL$; $BT<WL$. However, during follow-up the differences between treatment groups disappeared.

The fifth question measures discomfort in seeing one's own body, described as "sensitivity about the overall appearance of his or her shape or figure. It should not stem from sensitivity about specific aspects of appearance or modesty" (EDE questionnaire, p.48).

Table 4.26 EDE Discomfort with Body

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	3.11	2.37	2.38	2.17	2.12	2.27	2.37	2.33	1.81	1.97
BT	3.26	1.96	1.89	2.07	2.62	2.33	3.76	2.16	3.61	2.06
CT	4.35	2.08	2.11	2.39	2.40	2.50	3.00	2.61	3.00	2.52
WL	4.25	2.19	4.80	2.16						

Pre-post MANOVA indicates a significant time effect ($F=16.31$, $p<.0001$) and group by time effect ($F=6.38$, $p<.0001$).

One-way ANOVAs indicated that after treatment all treatment groups were experiencing significantly less discomfort with their bodies than the control group, ($F=7.31$, $p<.01$). In this variable, $CBT<WL$; $CT<WL$; $BT<WL$, but the treatment groups did not differ significantly from each other. During follow-up, there were no significant differences between treatment groups.

The seventh question measured how often the respondent felt fat, using the respondent's own use of the expression.

Table 4.27 EDE Feelings of Fatness

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.44	2.06	2.50	2.25	2.68	2.35	2.37	2.06	2.31	2.02
BT	3.94	1.89	3.21	2.34	3.06	2.40	3.76	2.00	3.76	2.00
CT	5.17	1.70	2.52	2.50	2.80	2.33	3.15	2.44	3.27	2.53
WL	4.40	1.95	4.95	1.87						

Pre-post MANOVA indicated a significant time effect ($F=23.80$, $p<.0001$) and group by time effect ($F=8.33$, $p<.0001$).

As for the previous variable, discomfort seeing own body, all treatment groups obtained significantly lower fear of fatness scores than the control group at the end of treatment ($F = 5.02$, $p<.01$). Although the above frequency table indicates that during follow-up patients who received CBT were obtaining lower scores than the other two groups, these differences were not statistically significant.

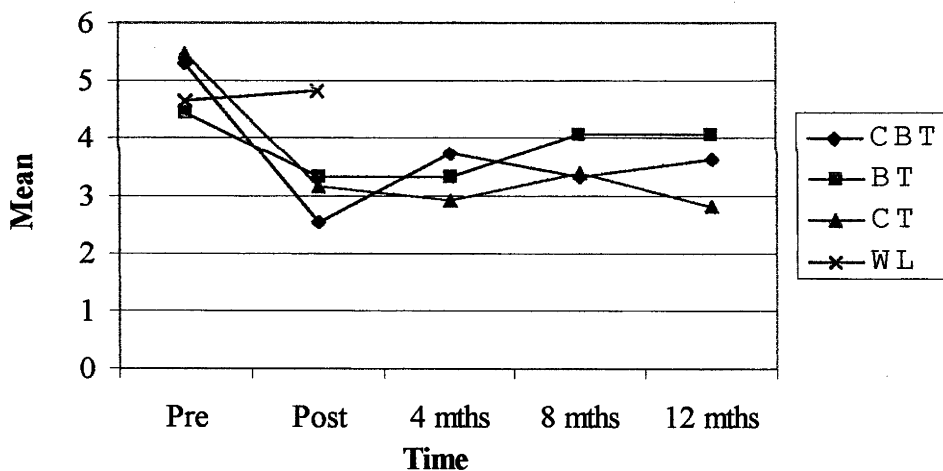
The last question asked patients to rate the frequency with which they wanted to have a flat stomach.

Table 4.28 EDE Desire for Flat Stomach

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	5.33	1.64	2.55	2.68	3.75	2.26	3.31	2.49	3.62	2.36
BT	4.47	2.34	3.31	2.76	3.31	2.46	4.07	2.28	4.07	2.28
CT	5.47	1.58	3.17	2.50	2.93	2.73	3.40	2.50	2.81	2.52
WL	4.65	2.30	4.85	2.05						

Pre-post MANOVA indicated a significant time effect ($F=25.16$, $p<.0001$) and group by time effect ($F=4.86$, $p<.004$).

After treatment one-way ANOVA indicated that only the CBT group differed significantly from the control group ($F=2.90$, $p<.05$). There were no significant differences between groups during follow-up.

Fig. 4.11 EDE Desire for Flat Stomach

The total Shape Concern scores are presented in the following table.

Table 4.29 EDE Total Shape Concern

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	33.88	9.41	19.77	14.58	21.50	14.17	19.87	14.59	19.68	13.29
BT	33.47	10.49	23.73	12.63	24.50	13.96	29.30	14.12	28.61	13.44
CT	38.17	10.40	19.64	15.72	19.93	17.21	23.15	18.03	21.90	16.89
WL	36.55	13.11	39.30	11.55						

Pre-post MANOVA indicates that there was a significant time effect ($F=60.46$, $p<.0001$) and group by time effect ($F=13.29$, $p<.0001$).

At the end of treatment all treatment groups had significantly lower total Shape Concern scores than the control group ($F=9.01$, $p<.01$). The treatment groups did not differ significantly from each other (CBT<WL; CT<WL; BT<WL) at this point, nor did they differ significantly from each other during follow-up.

The fifth dimension of the EDE is a Weight Concern dimension, consisting of five questions. Only the four questions where there was a significant treatment effect will be discussed.

The second Weight Concern question measures respondents' dissatisfaction with their weight, ranging from extreme concern and distress (6) to no dissatisfaction (0).

Table 4.30 EDE Dissatisfaction with Weight

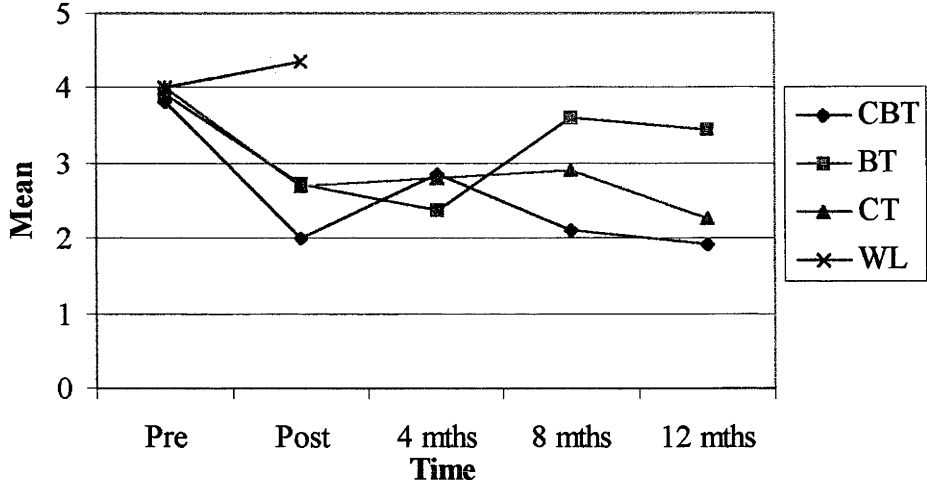
Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	3.83	2.06	2.00	2.22	2.87	2.27	2.12	2.36	1.93	1.87
BT	3.94	1.98	2.73	2.30	2.37	2.65	3.61	2.39	3.46	2.29
CT	4.00	2.20	2.70	2.33	2.80	2.30	2.92	2.39	2.27	2.14
WL	4.00	2.17	4.35	1.98						

Pre-post MANOVA indicated a significant time effect ($F=13.58$, $p<.00$) and group by time effect ($F=3.16$, $p<.05$).

One-way ANOVA indicated that after treatment only the CBT and BT groups had scores that were significantly lower than that of the control group ($F = 3.90$, $p<.01$).

There were no significant differences between groups during follow-up.

Fig. 4.12 EDE Dissatisfaction with Weight



The third question covered respondents’ reaction to the prescription, by the therapist of regular weekly weighing. The strength of the reaction, rather than the nature of the reaction is scored here.

Table 4.31 EDE Prescription of Weekly Weighing

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	1.77	1.83	0.50	1.24	1.50	2.22	0.50	1.54	0.18	0.75
BT	1.68	2.13	1.68	2.31	1.50	2.68	2.76	3.11	2.30	3.03
CT	2.17	2.42	1.88	2.64	1.93	2.31	2.07	2.53	1.81	2.75
WL	2.65	2.39	4.05	2.56						

MANOVA results in this variable did not reach significance, however the one-way ANOVAs indicated that after treatment all groups differed significantly from the control group, but not from each other ($F = 8.19, p < .01$). At eight months patients receiving CBT had a lower score than the BT patients ($F = 3.38, p < .05$) and again at 12 months ($F = 3.41, p < .05$) the CT group was in the middle, but was not significantly different from the other two groups.

The fourth question asked about preoccupation with weight. Patients were asked to estimate how much time they spent thinking about their weight to the extent that it impaired their concentration on other activities.

Table 4.32 EDE Preoccupation with Weight

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.11	2.37	2.16	2.70	1.75	2.38	1.75	2.49	1.68	1.62
BT	3.52	2.75	2.21	2.52	2.93	2.32	3.53	2.06	3.38	1.93
CT	4.35	2.47	1.58	1.93	2.20	0.59	2.53	2.29	2.54	2.11
WL	4.65	2.23	5.15	1.59						

Pre-post MANOVA indicated a significant time effect ($F=23.05$, $p<.0001$) and group by time effect ($F=5.94$, $p<.001$).

As indicated by one-way ANOVAs, after treatment all groups differed significantly from the control group ($F = 9.98$, $p<.01$) but did not differ significantly from each other. There were no significant differences between groups during follow-up.

The fifth question asked about the importance of weight in patients' lives. It is described as the degree of importance the patient has placed on weight and its position in his or her scheme for self-evaluation.

Table 4.33 EDE Importance of Weight

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.50	1.75	2.33	2.00	3.94	2.50	3.33	2.84	3.16	2.72
BT	4.57	1.38	3.84	1.77	4.42	3.00	5.73	2.72	5.68	2.72
CT	4.52	1.80	2.70	2.02	3.58	2.91	4.41	3.37	4.88	3.65
WL	4.90	1.37	4.95	1.50						

Pre-post MANOVA indicated a significant time effect ($F=30.73$, $p<.0001$) and group by time effect ($F= 5.92$, $p<.001$).

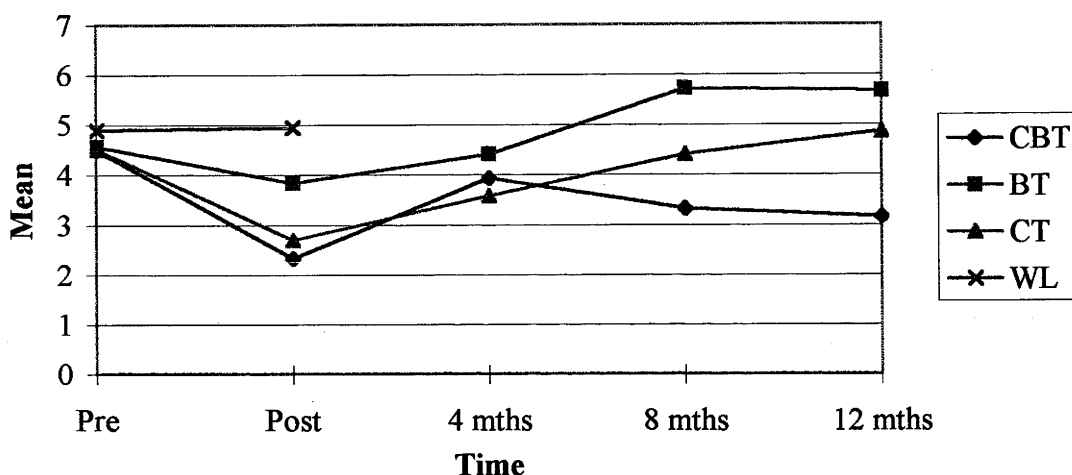
One-way ANOVAs indicate the following.

There was a significant group effect post treatment, between CBT compared to BT and WL, and between CT and WL ($F = 7.95$, $p < .01$).

At eight months, only CBT was significantly different to BT ($F = 3.01$, $p < .05$).

At 12 months, as above ($F = 3.26$, $p < .05$) as indicated in Figure 4.13.

Fig 4.13 EDE Importance of Weight



The total Weight Concern scores are indicated in the following table.

Table 4.34 EDE Total Weight Concern Score

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	18.94	6.17	9.94	8.69	13.18	8.91	9.31	8.13	7.75	6.70
BT	17.10	6.26	12.63	7.30	13.43	10.21	17.84	10.22	17.00	9.56
CT	19.11	8.99	11.17	9.11	12.86	10.35	13.53	11.09	12.36	10.46
WL	20.10	7.78	22.75	7.41						

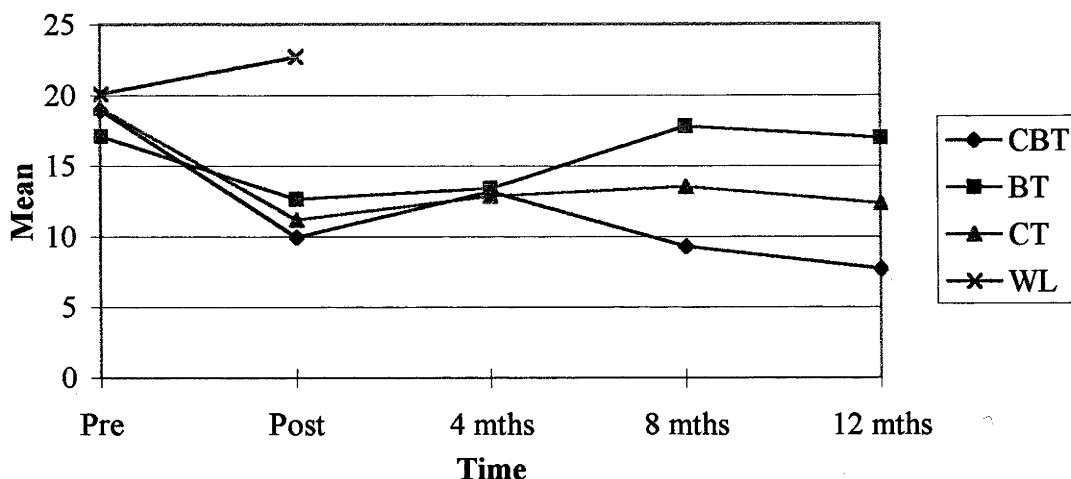
Pre-post MANOVA indicates a significant time effect ($F=27.38$, $p < .0001$) and group by time effect ($F=8.93$, $p < .0001$).

One-way ANOVAs indicated that all treatment groups differed significantly from the control group in total concern about weight at the end of treatment ($F = 10.04$, $p < .01$).

The treatment groups did not differ significantly from each other.

At 12 months, only the CBT group had a significantly lower score than the BT group ($F=3.97$, $p<.05$) as can be seen in Figure 4.14.

Fig 4.14 EDE Total Weight Concern Score



f.) Depression score, as measured by the Beck Depression Inventory.

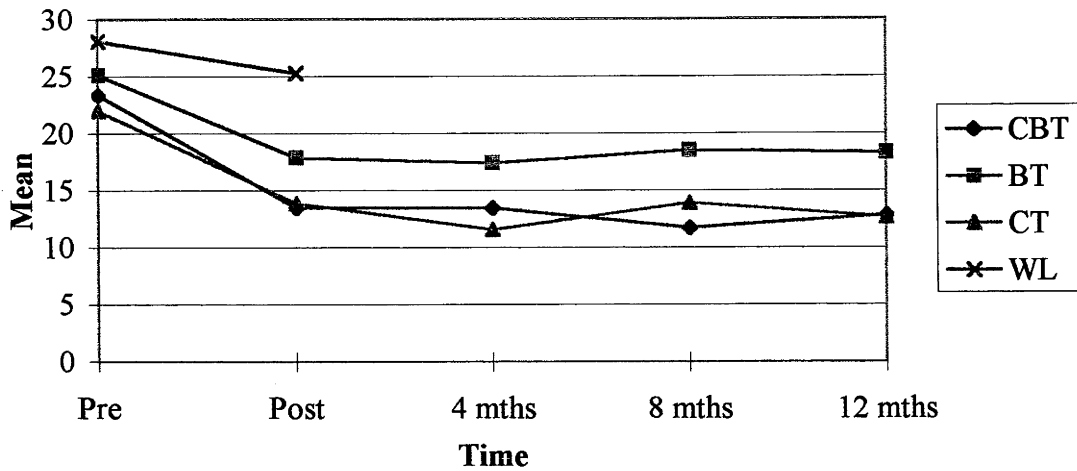
Table 4.35 BDI Scores

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	23.37	12.54	13.50	12.94	13.50	11.84	11.75	13.16	12.87	12.59
BT	25.10	8.76	17.84	12.10	17.43	16.12	18.53	16.50	18.30	16.87
CT	21.94	10.97	13.88	11.90	11.60	12.69	13.92	12.90	12.72	14.05
WL	28.10	12.03	25.30	11.63						

Pre-post MANOVA indicated a significant time effect only ($f=34.38$, $p<.0001$).

At the beginning of treatment all groups had a moderate to severe level of depression as measured by the BDI. After treatment the level of depression was reduced in all groups. However, post-treatment only the CBT and CT groups differed significantly from the control group ($F=13.88$, $p<.05$).

During follow-up, depression levels remained about the same as after treatment, with both the CBT and CT groups having the lowest scores, but not different enough from the BT group to reach statistical significance (see Fig.4.15).

Fig 4.15 Beck Depression Inventory Scores

g.) Eating Disorder Inventory (EDI) scores.

The EDI generates scores on a number of dimensions. Each was subjected to five one-way ANOVAs at each time and repeated measures MANOVAs at the pre-treatment and post-treatment times. Prior to treatment there were no significant differences on any dimension between any group, treatment or control. After treatment and at all stages of follow-up there were no significant differences between any group on the following dimensions: body dissatisfaction, ineffectiveness, interpersonal distrust and maturity fears. However, at the end of treatment there were significant treatment effects in Drive for Thinness, Bulimia and total EDI score (see below).

Table 4.36 EDI Drive for Thinness Score

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	15.77	5.45	11.00	7.67	11.50	7.59	9.75	6.80	7.87	7.48
BT	17.10	3.31	14.21	4.98	11.56	6.53	11.69	8.05	11.30	7.95
CT	14.82	4.91	11.05	6.14	8.20	7.04	9.15	7.27	7.90	8.12
WL	16.10	4.99	15.85	5.12						

Pre-post MANOVA indicated a significant time effect ($F=26.15$, $p<.0001$) and group by time effect ($F=3.02$, $p<.05$).

One-way ANOVAs indicated that following there was a significant difference between CT and WL only ($F=2.96$, $p<.05$).

There were no significant differences between groups during follow-up.

Fig 4.16 EDI Drive For Thinness Score

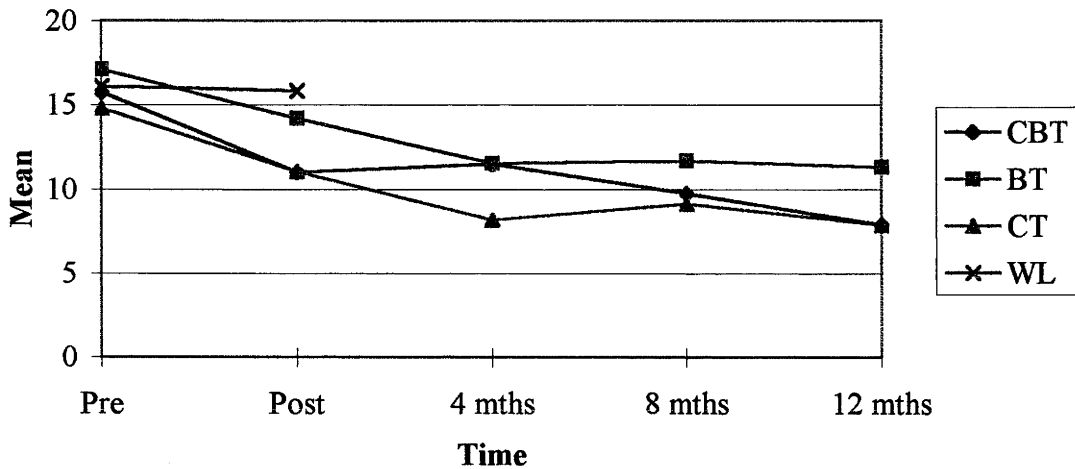


Table 4.37 EDI Bulimia Score

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	11.50	5.17	5.44	4.54	7.62	6.30	5.93	5.43	3.93	4.68
BT	10.94	6.65	6.78	5.45	5.43	6.52	5.76	7.33	6.00	7.42
CT	11.82	6.06	6.11	5.51	4.60	7.10	5.92	6.95	5.18	6.14
WL	12.00	5.59	11.90	6.43						

Pre-post MANOVA indicated a significant time effect ($F=48.09$, $p<.0001$) and group by time effect ($F=5.76$, $p<.0001$).

One-way ANOVA indicated that all three treatment groups differed significantly from the control group at the end of treatment, but did not differ significantly from each other ($F=5.43$, $P<.0020$). The frequency table indicated that the treatment groups' scores were lower than the control group's score.

At the three follow-up times, there were no significant differences between any group on this variable.

Table 4.38 EDI Interoceptive Awareness Score

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	12.88	5.96	9.27	8.09	8.81	8.09	7.50	8.03	6.56	6.25
BT	13.63	6.67	10.78	6.32	7.81	7.86	9.92	9.61	10.00	9.60
CT	13.70	8.65	7.11	7.25	4.93	7.30	6.53	7.81	6.81	8.20
WL	15.70	6.73	14.15	7.78						

Pre-post MANOVA indicated a significant time effect only ($F=19.01$, $p<.0001$).

Significance tests for the one-way ANOVAs indicated that only the CT group differed significantly from the control group ($F=2.98$, $p<.05$) at the end of treatment. The frequency table shows that patients in the CT group had the lowest score, followed by the CBT group then by the BT group, although the differences between these latter two groups and the control group were not large enough to reach statistical significance. At the three follow up times, there was no significant difference between any group on this scale.

Table 4.39 Total EDI score

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	88.61	29.27	65.83	38.98	70.25	47.21	78.80	37.79	50.68	36.94
BT	89.00	26.44	74.10	31.99	63.00	45.59	74.10	37.76	66.46	53.51
CT	89.88	29.16	63.47	36.48	46.53	37.42	68.79	26.29	47.81	37.85
WL	102.6	33.68	95.95	32.62						

Pre-post MANOVA revealed both significant time effects ($F=31.52$, $p<.0001$) and group by time effects ($F=3.48$, $p<.05$).

There was a significant difference between groups at the end of treatment, as revealed by the one-way ANOVA ($f=3.41$, $p<.05$). Significance tests indicate that only the CBT and CT groups differed significantly from the control group on total EDI score. The table above shows that patients in the CT and CBT groups had almost identical total EDI scores, which were lower than that obtained by the BT group which was, in turn,

lower than that obtained by the control group, but not significantly so. These differences disappeared during follow-up.

Table 4.40 POMS Depression Score

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	35.00	15.93	18.44	15.65	19.43	18.16	22.18	17.01	20.31	18.01
BT	33.47	14.01	27.05	13.70	14.94	14.94	22.76	14.30	23.23	14.98
CT	32.41	16.10	19.17	16.41	17.20	16.81	19.92	16.41	17.27	14.28
WL	36.95	8.64	32.20	15.75						

Pre-post MANOVA revealed a significant time effect only ($F=34.17$, $p<.0001$).

One-way ANOVA indicated a significant difference between groups at the end of treatment only ($F=3.45$, $p<.05$).

After treatment both CT and CBT were significantly lower than WL though not from each other. BT was not significantly different from WL.

There were no significant differences between groups during follow-up.

4.7 DISCUSSION OF RESULTS.

Analysis of results indicated that there were no significant pre-treatment differences between any of the groups, treatment or control, in any variable except for one Restraint subtest, three Overeating subtests and the total Overeating scale of the EDE. These were analysed by repeated measures MANCOVAs and there were no significant group or treatment effects.

Tables 4.3, 4.4, and 4.5 indicate that, after treatment, significant percentages of participants in all three treatment groups had reduced their frequency of bingeing and purging, or no longer met DSM III-R criteria for bulimia nervosa at the end of treatment and that these gains were well maintained at 12 months follow up. However, CBT produced better results at all stages than the CT and BT groups, 72% no longer

meeting DSM III-R criteria for bulimia nervosa at the end of treatment compared with 41% and 52% respectively. In terms of principal diagnostic features, the CT group maintained its improvement better than the BT group, at 12 months' follow up 72% of the CBT group no longer met criteria for bulimia, while for the CT group that figure was 58% and for BT, 47%.

There was an 88% reduction in binge rate and an 83% reduction in vomiting rate after group CBT (Table 4.5). These results compare well with results obtained in similar studies (Wolf and Crowther, 1992, who obtained a 44% reduction in binge rate and a 34% reduction in vomiting after eight weeks of group treatment). They also compare well with results obtained by Fairburn et al., (1986) who obtained an 87% reduction in binge and 71% reduction in vomiting rates after 18 weeks of individual CBT.

The significance of these changes, both behavioural and psychological, was assessed by a series of one-way ANOVAs and repeated measures MANOVAs, as described earlier. They can be summarised as follows.

There were significant time effects only on the following variables: EDI scores of body dissatisfaction, ineffectiveness, interpersonal distrust, maturity fears and interoceptive awareness; POMS scores of tension, anger, vigour, fatigue and confusion. Thus, in these variables, all groups, treatment or control, reduced their scores on these variables.

There were "general" treatment effects (ie. where all treatment groups had lower scores at the end of treatment compared with the control group) in most variables (represented in Tables 4.10 to 4.30). All of these treatment effects were maintained during the follow-up period.

There were some differential treatment effects. These occurred in the following variables:

- Frequency of vomiting. Only CBT patients had a significantly lower frequency of vomiting at the end of treatment than the control group (see fig.4.2).
- Frequency of bingeing. Table 4.6 indicates that at 12 month follow-up, the CBT patients were bingeing significantly less often than the other two groups.
- Level of depression, as measured by the Beck Depression Inventory (Table 4.35), where CBT and CT groups had lower scores than the BT group.

Differential effects were also noted in the following EDE scores.

- Total Restraint score and two subtests from the Restraint scale; restriction on amounts of food eaten and avoidance of types of food (Tables 4.10, 4.11, 4.12) where the CT group had significantly lower scores at the end of treatment than the other two treatment groups.
- Subjective loss of control of eating (Table 4.13) where the CBT group had a significantly lower score at 12 months follow-up than the other two treatment groups.
- Duration of a binge (Table 4.15) where CBT had a significantly lower score at 12 months than the other two treatment groups.
- Perceived fullness after a binge (Table 4.16), where the results were the same as for binge duration.
- Fear of loss of control (Table 4.18), where at 12 months the CBT group had a significantly lower score than the other two groups.

- Drive for Thinness, as measured by the EDI (Table 4.36) where the CT group had a significantly lower score at the end of treatment than either CBT or BT.

As suggested by the general treatment effects, treatment is obviously better than no treatment, both in terms of reducing bulimic behaviours and in some cognitive aspects, such as concerns about eating, weight and shape. Participants in CBT and CT groups experienced greater reductions in depression. Participants in CT group were more successful in reducing exercise rates, dietary restraint and drive for thinness.

Participants in CBT were more successful in reducing vomiting rates and in some restraint, eating concern and shape concern items measured by the EDE, as listed above. In no variable was treatment which focussed solely on changing eating behaviours superior to treatments which contained some cognitive elements.

Not only were there significant improvements in many features of bulimic behaviours during treatment, but these improvements were maintained at follow-up. Generally, there were no significant differences between treatment groups in any variable at the three follow-up times, with the exception of those items listed above.

These results are in agreement with those obtained by Fairburn et al. (1986, 1991, 1993, 1995); Wolf and Crowther (1992); Thackwray et al. (1993). They all found that immediately after treatment patients who received BT were not significantly different from patients who received full CBT in terms of reduction in bingeing and purging rates. In keeping with the results obtained in the present study, the above studies also found that patients who received full CBT were less likely to relapse, either in behavioural or psychological terms, over follow-up periods ranging from three to 12 months. In the present study there was no variable in which BT produced superior results, either immediately after treatment, or during follow-up. While there were some

variables in which CT patients had better outcomes than any other group, these advantages disappeared during follow-up.

The studies listed above as well as the present study indicate that over the long term, full CBT is superior to therapy which focuses on purely behavioural instruction in reducing bulimic behaviours. It is also superior to BT in reducing the associated psychopathology of bulimia, such as restraint, preoccupation with weight and shape and depression.

Full CBT also appears to be superior to therapy which focuses mainly on cognitive elements. For example, in the present study the number of CBT patients who no longer met DSMIII-R criteria for bulimia nervosa at 12 months was 72% compared with 58% for the CT patients. Kirkley et al. (1985) obtained a similar result. However, it is important to retain some elements of cognitive restructuring, as found by Cooper and Steere (1995). They compared CBT without any exposure and response prevention techniques to ERP without any cognitive restructuring. Immediately after treatment, the two groups were not significantly different in bulimic behaviour and associated psychopathology. At 12 months follow-up, the CBT group was significantly better in all areas than the ERP group.

The findings of the present study are of both theoretical interest and clinical importance and together with those obtained by Cooper and Steere, “provide strong evidence for a cognitive model of the maintenance of bulimia nervosa” (p.875). This model states, “...for there to be complete and lasting recovery, there should be change not just in these patients’ behaviour but also in their attitudes towards their weight and shape.” (Fairburn et al., 1988, p.640). In the present study, merely focussing on changing behaviours was not enough to maintain even behavioural change over time.

However, focussing on cognitions around behaviours, and cognitions around situations in which these behaviours occurred, was more likely to produce behaviour change. It would appear that the cognitive change is necessary to maintain the behaviour change over time (as indicated by the fact that in many variables, the CT and CBT groups were not significantly different). Some attention to behaviour change is necessary, however, as suggested by those variables in which full CBT was significantly different from CT, ie. frequency of bingeing, fear of, and feeling of loss of control over, eating.

Hypotheses about possible mechanisms of action of CBT were discussed by Wilson and Fairburn (1993). They pointed out that the development of treatment was based on a cognitive model of bulimia nervosa. The rationale for the CBT approach to the treatment of bulimia was described by Fairburn (1985) in the following way:

“One of the most striking features of bulimia...is the intensity and prominence of these patients’ dysfunctional beliefs and values concerning their shape and weight. Given the presence of this specific psychopathology, most other aspects of these conditions become intelligible. In bulimia, the extreme dieting, the vomiting and laxative abuse, the preoccupation with food and eating, the sensitivity to changes in shape and weight, and the frequent weighing or total avoidance of weighing are all comprehensible, once it has been appreciated that these patients believe that their shape and weight are of fundamental importance and that both must be kept under strict control. Even the apparently paradoxical binge eating can be understood in cognitive terms, since it seems that it may represent a secondary response to extreme dietary restraint. Thus, rather than being simply symptomatic of bulimia, these beliefs and values appear to be of primary importance in the maintenance of the condition. It

is therefore likely that change in this specific psychopathology is a prerequisite for full recovery.” (pp.160-161).

As Wilson and Fairburn stated in 1993,

“It follows from this model that modification of abnormal attitudes about the personal significance of body shape and weight and replacement of dysfunctional dietary restraint with more normal eating patterns should be primary targets of treatment.” (p.261).

One hypothesis about treatment mechanisms that Wilson and Fairburn raised was that abnormal attitudes about shape and weight drive dieting and hence bingeing:

“Supporting this view is the finding that among patients who have responded to treatment, those with the greatest level of residual attitudinal disturbance are most prone to relapse. However, whether attitudinal change mediates improvement in binge eating and purging or is simply a correlate or consequence of behaviour change, remains to be decided.” (p.265). While the present study did not investigate the link between attitudes of those patients who were successful in treatment compared with those who were not, the fact that patients in the CBT and CT groups did not differ significantly from each other in most variables, with a few exceptions, suggests that attitudinal change mediates improvement.

Another hypothesis about mechanisms of action is that” a reduction in dietary restraint mediates the reduction in binge eating and that CBT operates by directly reducing restraint” (Wilson and Fairburn, 1993, p.265).

Wilson, Fairburn and Agras (in D.M. Garner and P.E. Garfinkel Eds., *Handbook of Treatment for Eating Disorders*) noted:

“Of primary importance is the value that attaches to the idealised body weight and shape. This leads women to restrict their food intake in rigid and unrealistic ways, a process that leaves them physiologically and psychologically susceptible to periodic loss of control over eating, namely binge eating. Purging and other extreme forms of weight control are the patient’s attempt to compensate for the effects of binge eating. Purging helps maintain binge eating by reducing the patient’s anxiety about potential weight gain and disrupting learned satiety that regulates food intake. In turn, binge eating and purging cause distress and lower self esteem, thereby reciprocally fostering the conditions that will inevitably lead to more dietary restraints and binge eating. It follows from this model that treatment must address more than the presenting behaviours of binge eating and purging. In addition, dietary restraint must be replaced with more normal eating patterns, and dysfunctional thoughts and feelings about the personal significance of body weight and shape must be altered.” (p.70).

The importance of directly addressing dietary restraint is indicated by the results of the present study, where the CT group had significantly lower EDE Restraint scores than all other groups. However, it also appears to be important to tackle directly the behavioural response to restraint, as indicated by the present results, where the CBT group had a significantly lower rate of bingeing at 12 month follow-up than any other group.

Results obtained by the present study are also of clinical significance. Firstly, in keeping with several other studies reported earlier, it was found that CBT results in a significant reduction in a broad range of bulimic symptomatology. In addition, these changes are well maintained over follow-up, without intervening treatment. The other clinical implication of the present study is that it appears that group therapy, over a

relatively brief period of time (seven weeks compared with 20 weeks) also has a significant effect in reducing bulimic symptoms. The present results of an 88% reduction in bingeing and an 83% reduction in vomiting for the CBT group at the end of treatment compare well with Fairburn et al.'s 1986 results where patients experienced an 87% reduction in binge frequency and a 71% reduction in vomit frequency (see Table 3.2). These percentages are well within what Wilson et al. estimate to be the mean percentage reduction in bingeing and purging in the most recent and best-controlled studies. These figures are estimated at between 93% and 73% for bingeing, and between 94% and 77% for purging (p.68).

Another clinical implication of the present results is that not all elements of CBT need to be retained in treatment. The present findings suggest that only those behavioural parts of CBT which relate to superior performance of CBT over CT be retained. Those elements of full CBT which do not appear to be related to superior effectiveness of CBT can therefore be discarded, thus streamlining therapy without sacrificing effectiveness.

It has already been noted that the CBT group experienced the most significant improvement in the following areas:

- .Frequency of vomiting (after treatment only).
- .Frequency of bingeing (at 12 months follow up only).
- .Duration of each binge (at 12 months).
- .Perceived fullness after a binge (at 12 months).
- .Subjective loss of control over eating (at 12 months).
- .Fear of losing control over eating (at 12 months).

The above results indicate that the behavioural instruction that should be retained should relate in content to these six areas. This was done by examining those aspects of CBT which related to these six areas, which were present in CBT but not in CT (see Appendices).

The elements common to both CBT and CT were:

- .Use of diaries to record eating behaviours and relevant cognitions and emotions.

Fairburn's reasons for this was to gain a complete picture of each person's eating habits, to encourage compliance, and to enable patients to gain insights into their eating behaviours.

- .Discussion of the function of bingeing and vomiting, such as distraction from unpleasant thoughts or feelings. As Fairburn (1985) noted: "The idea that binge eating serves a function is novel to most patients. Usually they find this notion reassuring, since it starts to make sense of the eating problem. Each time the patient overeats, she should be encouraged to examine why she did so." (p.175).

- .Identification and modification of thoughts, beliefs and values that perpetuate the eating problem.

- .Training in problem solving, to help the patient cope with negative events or moods without needing to binge or purge.

The elements that were contained in CBT but not in CT were primarily behavioural instructions designed to help the patient regain control over eating. These include the following:

- .Advice about eating behaviours, such as a prescription of a pattern of regular eating.

- .Techniques for controlling the act of eating, such as, slowing the rate of eating.
- .Discussion of the effectiveness of purging as a means of weight control.
- .Alternative behaviours (to bingeing), whereby patients generate lists of activities they can use to delay, or distract themselves, from bingeing.
- .Stimulus control, including such instructions as sitting down to eat, eating off a plate, not doing other things while eating, particular food shopping and preparation instructions, and so on. Fairburn included these treatment elements in the treatment programme for bulimics because of their proven effectiveness in the treatment of obesity (1985, p.173).

When the above treatment content was examined in relation to the six items where CBT was superior to CT, behavioural instructions related to stimulus control did not appear to relate to those areas where full CBT was superior to CT.

4.8 SUMMARY

The present study had two aims. The first was to discover which parts of the total CBT package were significant in bringing about change in bulimic symptomatology. The second was to see if a brief, manual based group therapy could be as effective as longer, manual based individual therapy in reducing bulimic symptomatology.

To test this out, a total of 74 bulimic women participated in seven weekly sessions of group therapy. One group received full CBT, another group received a dismantled BT version, while another received a dismantled CT version. Their results were compared with those of a control group.

To assess bulimic behaviours, specific and general psychopathology, participants completed a number of standardised assessments before and after treatment and at four, eight and 12 months follow-up.

There were no significant differences between groups before treatment (apart from five test scores). Results obtained from all assessments were analysed by a series of ANOVAs, MANOVAs and MANCOVAs.

Results indicated that the briefer, group therapy could be as effective as individual therapy, as evidenced by the significant reductions in behavioural and psychological symptoms after treatment, and the maintenance of these improvements during follow up. These improvements compare favourably with results obtained in other studies using both individual and group therapy (compare Table 3.2 with Tables 4.3, 4.4, 4.5).

In the case of the first aim, which was to identify crucial aspects of the CBT package which produce clinical change, this was done by examining those results in which there were differential treatment effects and linking them with item content. In the present study the CBT group obtained greater symptom reduction than the other two groups in the following areas: frequency and duration of bingeing, and both a feeling of, and anxiety about, loss of control over eating.

When the content of all of the above items was compared with the total content of the CBT and CT manuals, it appeared that the part of the CBT package which related to stimulus control measures, such as not engaging in other activities while eating, restricting eating to one room in the house, discarding leftovers and so on (session three of CBT and BT and not included in CT) did not contribute anything to treatment effectiveness.

To see if this was the case, it was proposed that a “new” form of CBT, excluding stimulus control instructions, be used to treat bulimic patients and that the results compared with those obtained by full CBT. This was the focus of the next study.

CHAPTER 5

5.1 INTRODUCTION

Study Two, reported earlier in Chapter Four, compared the effectiveness of full CBT with dismantled BT and CT in reducing a wide range of bulimic symptomatology. In that study it was found that both CBT and CT resulted in greater improvements, both immediately after treatment, and at four, eight and 12 months follow-up. In some variables CBT resulted in a significantly greater improvement than the other two therapies. These were in frequency and duration of bingeing, a fear of loss of control over eating and a feeling of having lost control over eating. Because of the success of CT, it was concluded that to be effective, treatment needed to focus on disordered cognitions in order to bring about positive change in bulimia. However, some behavioural instruction needed to be retained, particularly in those areas of treatment relating to those variables in which full CBT resulted in significantly greater positive change than the other two groups.

Examination of the treatment protocols of CBT and CT suggested that an area where CBT resulted in the greatest change, and did not overlap with CT, was related to stimulus control instructions. Thus it was proposed that a third study, similar in all respects to the second study, be conducted to examine the effectiveness of a new form of CBT without the stimulus control instructions.

5.2 AIM OF THIRD STUDY.

The aim of this study was to see if a new form of group CBT, without any stimulus control instructions, could be as effective as full CBT in reducing a wide range of bulimic symptomatology, behavioural and psychological.

5.3 DESCRIPTION OF GROUP

There was one treatment group (N=19) which received the new form of CBT (NCBT). The procedure for this group was identical to that of the original CBT group in Study Two, with two exceptions. These were, all stimulus control instructions were absent, and because of this, the duration of the group was shorter, ie. five weeks instead of seven weeks. The duration of each session was the same, however, at two hours. See Appendix L for a copy of the full protocol.

5.4 SELECTION OF SUBJECTS.

These were recruited in the same way as participants in the second study. That is, all participants (N=19) were women over the age of 16 years who met DSMIII-R diagnostic criteria for bulimia nervosa, who were consecutively referred to the researcher by medical practitioners or counsellors.

To be entered into the study, they had to fulfil the same inclusion and exclusion criteria as participants in the second study. (pp123-124.)

5.5 ASSESSMENT OF SUBJECTS.

All participants in this study completed the same assessments as participants in the second study. That is, for an assessment of bulimic symptomatology, the EDE and EDI were used. The BDI was used to assess depression, and the POMS used for an assessment of general psychopathology. For a fuller description of these assessment tools, see Chapter 4 and Appendices A, H, I, J).

5.6 RESULTS.

a.) Attrition Rates.

As in Study Two, no participants dropped out of active treatment. However, a number were lost at various stages during follow-up. In the present study, five participants (26%) dropped out after treatment and were not available for assessment at any of the follow-up times. Another one dropped out after the four month assessment (bringing the total to 31%). This attrition rate is similar to that of the second study, where the attrition rates for the CT and BT groups after treatment were 29% and 26% respectively. As in Study Two, participants dropped out of follow-up because they moved away from the area. The zero attrition rate during treatment compares well with similar studies, (Garner et al., 1987) discussed in Chapter Four.

Table 5.1 Clinical Characteristics of Sample

Compared with sample in Study Two.

	CBT	BT	CT	WL	NCBT
(MEANS)	N = 18	N = 19	N = 17	N = 20	N = 19
Age	21.56	24.21	23.64	23.45	24.82
BMI	21.72	21.47	24.30	22.73	23.46
Duration of bulimia (yrs)	3.80	5.03	5.28	6.58	5.55
F. binge (per mth)	36.83	51.84	54.23	32.75	43.89
F. vomit (per mth)	31.22	47.42	50.82	21.80	32.84
BDI	23.27	25.10	21.94	28.10	26.73

The above table indicates that the participants in Study Three were similar to those in study two in core bulimic symptomatology. The CBT group was slightly younger and had a shorter duration of bulimia than all other groups, but when pre-treatment results were analysed with a series of one-way ANOVAs, there were, in fact, no significant differences between any of the groups in the above variables.

The results from study Three were combined with all of those for Study Two and re-analysed as in Study Two.

b.) Pre-treatment analyses.

Individual one-way analyses of variance (ANOVAs) were conducted to identify pre-treatment differences in all variables, eg. age, duration of bulimia, BMI, frequency of bulimic behaviours, EDE, EDI, BDI, POMS results. Probability levels for all analyses were .05 unless otherwise specified. Student-Newman-Keuls tests were used for all follow up analyses unless otherwise specified. No significant pre-treatment differences between groups were found on any demographic variable or behavioural variable, except in 10 EDE subtest scores. These were: one Restraint subtest; three Overeating subtests; two Shape Concern subtests and total Shape Concern score; two Weight Concern subtests; and the Weight Concern total score. These items were analysed by repeated measures analyses of covariance (MANCOVAs).

c.) Success of Treatment.

As in Study Two, this could be simply defined as the number of participants who, at the end of treatment, and during follow-up, would no longer meet DSMIII-R criteria for bulimia nervosa (Table 5.2). A more rigorous way of describing success in treatment, used by some researchers (Fairburn et al., 1991; Wilson et al., 1991), is number of participants who are totally abstinent from bingeing and vomiting (Table 5.3). Table 5.4 indicates the number of participants who have totally ceased, and those who have reduced their frequency of bingeing and vomiting.

Table 5.2 Percentages of patients who no longer meet DSM III-R criteria for bulimia nervosa

	POST TREATMENT	12 MONTHS
CBT	13/18 (72%)	13/18 (72%)
BT	10/19 (52%)	9/19 (47%)
CT	7/17 (41%)	10/17 (58%)
NCBT	10/19 (52%)	9/19 (47%)

The above table indicates that patients who received full CBT were least likely to receive a diagnosis of bulimia both at the end of treatment and at 12 months follow-up. NCBT patients were initially as successful as BT patients and both were more successful than the CT patients. However, like the BT patients in study two, their clinical improvement did not appear to be maintained, as it was in the original CBT and CT groups.

Table 5.3 Percentages of patients abstinent from bingeing and vomiting

	BINGE		VOMIT	
	Post	12 mths	Post	12 mths
CBT	10/18(55%)	10/18(55%)	8/18(44%)	7/18(38%)*
BT	3/19(15%)	1/19(5%)	4/19(21%)	4/19(21%)
CT	6/17(35%)	3/17(17%)	4/17(23%)	1/17(5%)
NCBT	5/19(26%)	5/19(26%)	6/19(31%)	5/19(26%)

The above table indicates that the NCBT group was less successful than the CBT group in being abstinent from bingeing and vomiting both at the end of treatment and at 12 months follow-up. However, NCBT was more successful than BT in all of these areas. NCBT was less successful than CT initially in abstinence from bingeing, but maintained its improvement better during follow-up. NCBT was also better than CT in producing a higher abstinence rate from vomiting, both after treatment and at follow-up.

Table 5.4 Percentages of patients who ceased/reduced frequencies of bingeing and vomiting

	BINGE		VOMIT	
	Post	12 mths	Post	12 mths
CBT	16/18(88%)	13/18(72%)	15/18(83%)	14/18(77%)
BT	14/19(73%)	7/19(36%)	15/19(78%)	9/19(47%)
CT	13/17(76%)	10/17(58%)	13/17(76%)	10/17(58%)
NCBT	13/19(68%)	11/19(57%)	15/19(78%)	12/19(63%)

The above percentages again indicate some superiority of full CBT over any other therapy, both immediately after treatment and at 12 months. While BT initially produced good reductions in vomiting and bingeing frequencies, these were not maintained. CT and NCBT were roughly equivalent in their effects on reducing bingeing and vomiting.

It should be pointed out that all 12 month figures are possibly “pessimistic” figures because of the drop-outs during the follow-up period. In Tables 5.2, 5.3, 5.4, drop-outs are included among the failures. This may not necessarily have been the case. As in Study 2, many people were unavailable for long term follow up because of their overseas travel, or because of moving away from their original homes. As the researcher personally tracked all participants in the study for a period of a year following treatment, it was possible to identify the drop outs, and whether or not they had ceased their bulimic behaviours by the end of treatment. Some of those who did drop out of follow up were, in fact treatment successes, as they had ceased bingeing and vomiting by the end of treatment.

As mentioned earlier, Tables 5.2, 5.3, and 5.4 provide an overview of comparative success of the different treatments. To see if the differences between the new group and the three groups from Study Two were significant, a series of one-way ANOVAs at each of the five measurement points (pre, post, four, eight and 12 months follow-

up) were conducted. In addition, repeated-measures MANOVAS were performed to examine the time by group interaction pre and post treatment. Repeated-measures MANOVAs could not be performed at any of the follow-up times because of the reduction in subject numbers. Ten MANCOVAs were also performed on those variables where there were significant pre-treatment differences. See Appendix M for all ANOVA, MANOVA and MANCOVA tables.

d.) Behavioural Variables.

Table 5.5. Frequency of Bingeing per Month

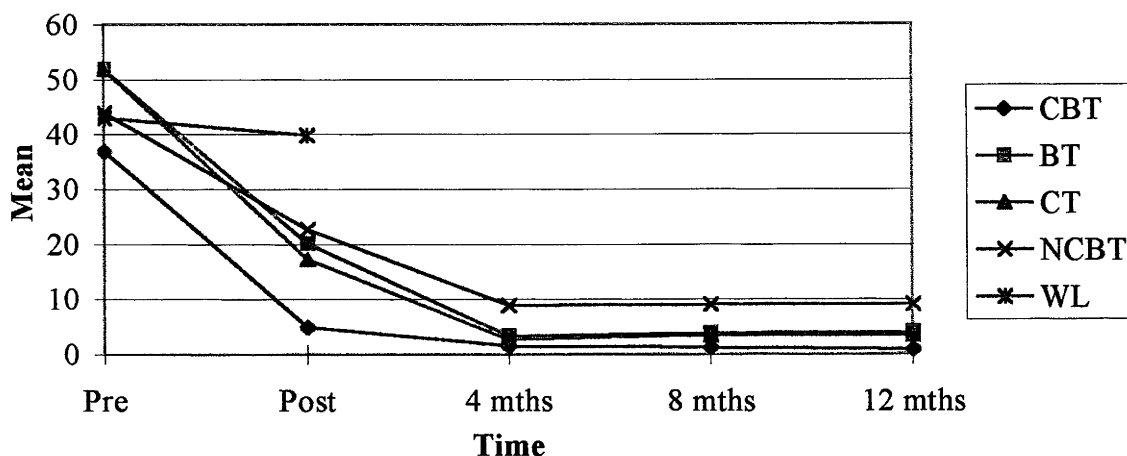
Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	36.83	26.98	4.94	6.36	1.49	1.81	1.28	1.68	0.89	1.71
BT	51.84	46.25	20.10	30.43	3.28	3.57	3.83	1.06	4.12	3.21
CT	51.84	46.25	17.29	27.56	2.72	3.20	3.45	0.95	3.56	2.98
NCBT	43.89	39.59	22.63	41.16	8.92	15.57	9.15	10.18	9.15	16.18
WL	42.95	36.63	39.85	32.52						

Prior to treatment there were no significant differences between groups in frequency of bingeing.

The MANOVA result for pre-post measures indicated both a significant time effect ($F=47.45$, $p<.0001$) and a significant group by time effects ($F=2.86$, $p<.05$).

The above frequency chart and figure 5.1 below indicate that while all treatment groups reduced their frequency of bingeing during treatment, only the difference between CBT and WL was significant, as measured by the one-way ANOVA calculated at the end of treatment ($F=3.30$, $p<.05$) and the WL group only.

There was also a significant difference between CBT and BT only at eight months follow up ($F=3.45$, $p<.05$). One-way ANOVAs at four and 12 months were not significant.

Fig. 5.1 Frequency of Bingeing Per Month

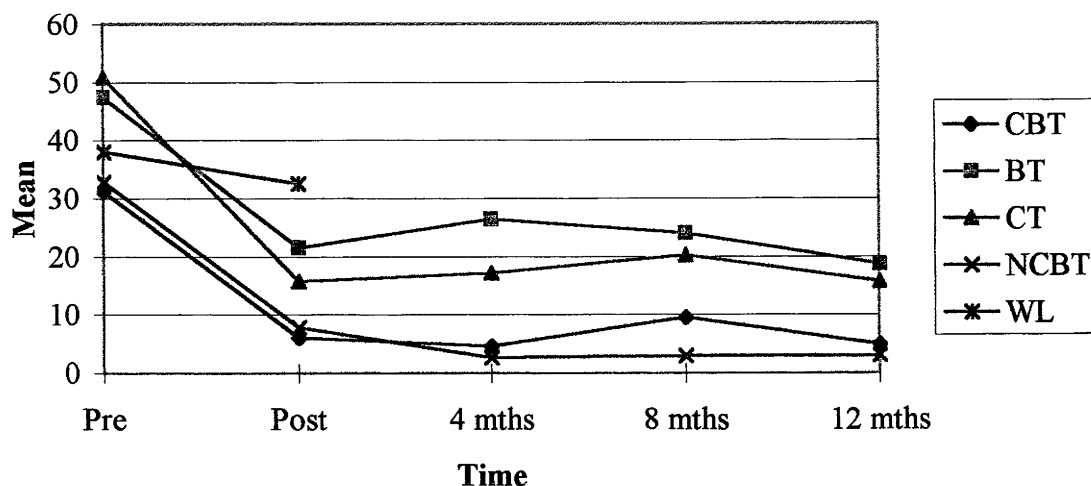
All statistical tables can be found in Appendix M.

Table 5.6. Frequency of Vomiting per Month

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	31.22	35.67	6.11	9.27	4.62	6.33	9.56	20.93	5.00	7.63
BT	47.42	45.22	21.47	32.15	26.50	48.10	24.00	42.58	18.76	29.23
CT	50.82	49.65	15.82	20.51	17.20	26.42	20.30	27.98	15.72	17.37
NCBT	32.84	22.66	7.78	10.64	2.64	4.48	3.00	4.74	3.07	4.75
WL	38.10	43.85	32.55	39.85						

Before treatment no groups differed significantly from each other. After treatment, the one-way ANOVA indicated a significant between groups effect ($F=2.78$, $p<.05$). Only the CBT and NCBT groups differed significantly from the control group. There were no significant differences between groups at four or eight months, but at 12 months there was a significant difference between groups ($F=2.65$, $p<.05$). No two groups differed significantly from each other at the .05 level, but Figure 5.2 indicates that both CBT and NCBT had the lowest frequency of vomiting at that time.

The pre-post MANOVA indicated a significant time effect ($F=64.28$, $p<.0001$) and a significant group by time effect ($F=2.56$, $p<.05$).

Fig. 5.2 Frequency of Vomiting Per Month**Table 5.7 Frequency of Laxative use per month**

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	0.68	1.17	0.71	1.42	0.41	0.78	0.52	0.98	0.43	0.89
BT	1.16	2.36	0.72	1.58	0.79	1.52	0.86	1.58	0.62	0.99
CT	0.66	1.91	0.13	0.30	0.03	0.30	0.16	0.47	0.66	1.61
NCBT	2.18	2.42	0.79	1.96	0.40	1.40	0.43	1.45	0.43	1.45
WL	0.94	2.42	1.00	1.46						

Table 5.7 indicates a generally low use of laxatives by all patients.

There was no significant pre-treatment difference between groups in frequency of laxative use.

The pre-post MANOVA indicated a significant time effect only ($F=6.60$, $p<.05$).

One-way ANOVAs at each time indicated no significant differences between groups, either after treatment or at any follow-up time, although table 5.7 indicates that the NCBT group did reduce laxative intake during treatment, but this was not a strong enough trend to reach statistical significance.

There were no differences in frequency of exercise between any group before or after treatment or during follow-up.

e.) EDE Variables

The Restraint Dimension, measuring degree of restraint in eating or dieting practice.

Question 1. Conscious restriction of food eaten.

Table 5.8 Restriction on amount eaten.¹

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	5.44	1.19	4.44	1.88	3.43	2.25	2.93	2.29	2.12	2.27
BT	4.47	2.54	4.52	2.31	3.31	2.70	3.92	2.53	3.76	2.45
CT	4.88	2.34	2.41	2.69	3.20	2.56	3.40	2.56	3.72	2.53
NCBT	5.47	1.46	3.73	2.57	2.35	2.46	2.38	2.59	2.38	2.53
WL	4.70	2.27	4.70	2.45						

There was no significant difference between groups on this EDE score prior to treatment.

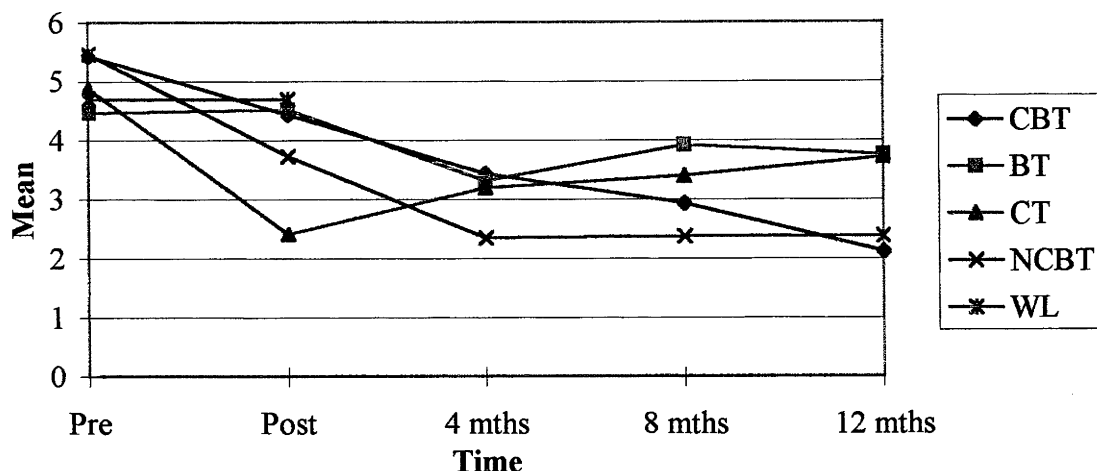
Repeated measures MANOVAs indicated both a significant time effect ($F=12.44$, $p<001$) and group by time effect ($F=2.78$, $p<.05$).

As figure 5.3 indicates, all treatment groups reduced their scores on this variable pre to post treatment. However, one-way ANOVA performed at the end of treatment indicated that the CT group differed significantly from CBT, WL and BT but not NCBT ($F=2.72$, $p<.05$). This is a similar result to that of Study 2 in this variable.

There CT differed from the other three groups. In the present case new CBT seems to be at least as helpful as CT in reducing patients' desire to restrict their food intake.

However, during follow up there were no significant differences between any of the treatment group, although the graph below indicates that CBT and NCBT groups had slightly lower scores than the other groups at 12 months.

¹ All EDE scores (apart from totals) are scaled from 0 to 6, the higher the score, the more severe the problem.

Fig. 5.3 EDE Restriction on Amount Eaten

Question 2. Relating to the frequency of eating. This question asks if the respondent tries to avoid eating for periods of more than eight (daytime) hours per day. This is a different question to number 4, which measures avoidance of types of food.

Table 5.9 Avoidance of Eating (Time).

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	1.55	2.22	0.88	1.64	0.93	1.73	0.75	1.18	0.56	1.09
BT	1.36	1.77	1.00	1.76	1.00	1.91	0.77	1.53	0.53	0.96
CT	0.23	0.56	0.29	0.98	0.00	0.01	0.23	0.59	0.54	0.82
NCBT	2.21	2.34	1.26	2.07	0.78	1.84	0.92	1.93	0.92	2.06
WL	1.35	2.00	1.26	1.47						

There were no pre treatment differences between groups on this variable.

Repeated measures MANOVA indicated a significant time effect only, ($F=5.50$, $p<.05$). The above table suggests that CBT, NCBT and BT reduced their scores on this variable, but not enough to reach statistical significance as indicated by the one way ANOVAs performed at each point of measurement which were not significant at any time.

The low scores generally in the above table suggest that most patients did not often use time abstinence as one way of controlling weight or shape.

Question 3. Desire for an empty stomach. This question is rated as the number of days that the respondent wishes to have an empty stomach for reasons to do with dieting, shape or weight.

Table 5.10 Desire for an empty Stomach

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.22	2.57	2.00	2.32	2.31	2.21	2.56	2.39	1.43	1.54
BT	4.57	2.09	3.42	2.56	2.87	2.89	2.76	2.77	2.76	2.77
CT	4.35	2.37	2.00	2.15	1.93	2.34	2.30	2.49	2.27	2.24
NCBT	5.00	1.59	2.89	2.37	2.50	2.59	2.69	2.71	2.76	2.74
WL	4.35	2.51	3.20	2.58						

There were no significant differences between groups before treatment.

The frequencies above indicate a decline in desire for an empty stomach during treatment and, to a lesser extent, during follow-up. This trend was strongest in the CBT, NCBT and CT groups, and is indicated by the repeated measures MANOVA, which indicated a significant time effect only ($F=44.70$, $p<.0001$). But one way ANOVAs performed at the end of treatment and at four follow-up times indicated that the between-groups differences were not statistically significant.

Question 4. Relating to the respondent's attempt to avoid eating certain foods (which she likes) to influence weight or shape.

Table 5.11 Avoidance of Eating (Quantity).

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.61	2.06	4.11	2.37	3.31	2.24	1.87	2.24	1.81	2.25
BT	4.73	2.13	3.36	2.43	2.87	2.36	3.38	2.21	3.30	2.17
CT	4.11	2.36	2.32	2.30	2.46	2.55	2.61	2.63	2.45	2.54
NCBT	5.05	1.71	2.68	2.47	2.14	2.56	2.69	2.71	2.16	2.66
WL	5.10	2.07	4.45	2.18						

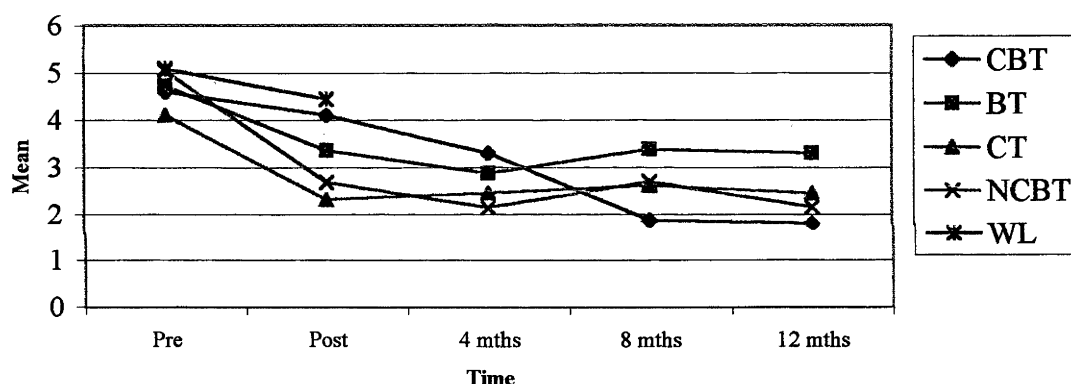
Before treatment, there were no significant differences between any group on this variable.

Repeated measures MANOVA indicated a significant time effect only ($F=21.62$, $p<.0001$).

Table 5.11 indicates that NCBT and CT experienced the greatest reductions in this variable during treatment, but the one way ANOVA indicated that only the CT group differed significantly from the WL group ($F=2.88$, $p<.05$).

There were no significant differences between groups at any stage during follow-up. Trends are illustrated in figure 5.4

Figure 5.4 Avoidance of Eating(Quantity)



Question 5, which measures attempts made on the part of the respondent to follow “strict” dietary rules as a way of controlling weight.

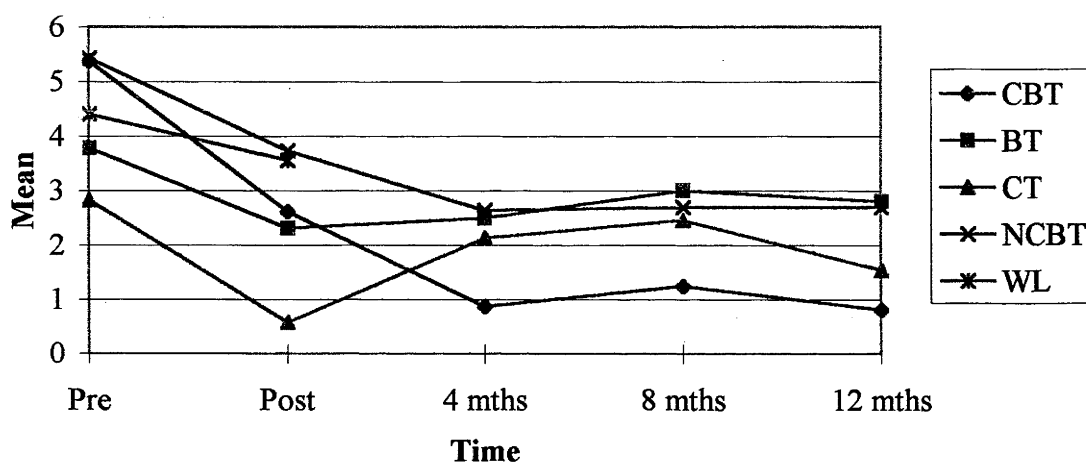
Table 5.12 Following Strict Dietary Rules.

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	5.38	1.64	2.61	2.78	0.87	1.74	1.25	2.40	0.81	1.47
BT	3.78	2.97	2.31	2.92	2.50	2.75	3.00	2.82	3.00	2.82
CT	2.82	3.08	0.58	1.69	2.13	2.66	2.46	2.72	1.54	2.33
NCBT	5.42	1.61	3.73	2.78	2.64	2.84	2.69	2.71	2.69	2.71
WL	4.40	2.62	3.55	2.66						

In this variable there was a pre-treatment difference between groups, therefore the pre-post figures were subjected to a MANCOVA. This revealed a significant group by time effect ($F=2.85$, $p<.004$). Table 5.12 and Figure 5.5 indicate that both CBT and

NCBT groups started with the highest scores on this variable. CBT resulted in the greatest reduction during treatment, and maintenance effect during follow up. BT did not produce as strong a change as the other groups. While initially CT had a reduced score, this result was less well maintained during follow-up.

Fig. 5.5 Following Strict Dietary Rules



The Total Restraint Score (the sum of all five items).

Table 5.13 Total EDE Restraint Score.

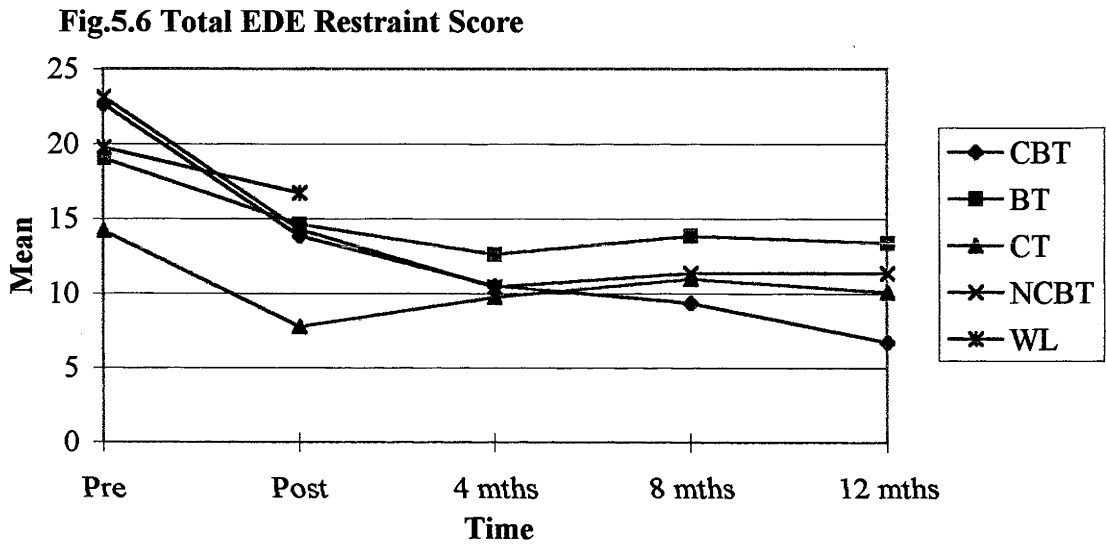
Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	22.66	10.83	13.83	6.09	10.50	6.88	9.37	8.31	6.75	6.88
BT	19.00	7.85	14.63	8.13	12.62	11.05	13.84	10.17	13.38	9.64
CT	14.41	5.40	7.76	6.51	9.73	7.62	11.00	8.44	10.09	9.35
NCBT	23.10	5.47	14.26	10.16	10.42	10.81	11.38	11.31	11.38	11.31
WL	19.75	8.40	16.70	7.79						

There were no significant differences between groups before treatment.

Pre-post MANOVA indicated a significant time effect only ($F=43.98$, $p<.0001$).

One-way ANOVA, at the end of treatment indicated that CT differed significantly from CBT, NCBT and WL, but not BT ($F=3.16$, $p<.01$).

Examination of the frequencies in Table 5.13 indicates that CT experienced the greatest reduction in total Restraint during treatment. However this superiority was not maintained. The above figures indicate that in the longer term (12 months) CBT sustained greater reductions than any other group, although ANOVAs at each of the follow-up times were not statistically significant.



The Overeating Dimension.

As in Study Two, in three of the subtests there were significant pre-treatment differences. These were analysed by MANCOVAs and there were no significant time or group by time effects in these variables.

The remaining questions were analysed with a series of ANOVAs at each assessment time and with repeated measures MANOVA pre-and post-treatment.

Question 1, designed to measure subjective loss of control over eating.

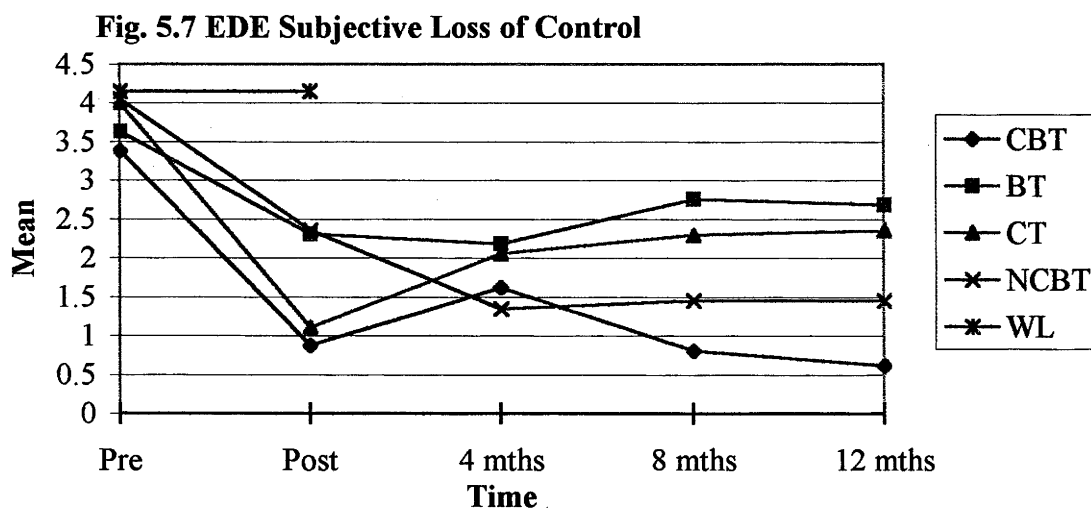
Table 5.14 EDE Subjective Loss of Control

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	3.38	2.40	0.88	1.13	1.62	2.27	0.81	1.22	0.62	1.14
BT	3.63	2.29	2.31	2.18	2.18	2.34	2.76	2.77	2.69	2.78
CT	4.00	1.90	1.11	1.57	2.06	2.37	2.30	2.35	2.36	1.85
NCBT	4.05	1.71	2.36	2.29	1.35	1.69	1.46	1.85	1.46	1.85
WL	4.15	1.89	4.15	1.89						

There were no significant pre-treatment differences in this question.

Repeated measures MANOVA indicated a significant time effect ($F=66.18$, $p<.0001$), and a significant group by time effect ($F=6.05$, $p<.0001$).

After treatment all treatment groups differed significantly from the control group ($F=9.04$, $p<.0001$). There was also a significant difference between groups at 12 months follow-up ($F=3.19$, $p<.05$) whereby CBT only differed significantly from BT. Examination of the above frequencies (figure 5.7 below) indicates a trend for both CBT and NCBT to maintain their reductions in this scale over time, whereas CT and BT were less successful in this respect.



Question 2, number of days where there were objective bulimic episodes.

Table 5.15 Objective Bulimic Episodes (days).

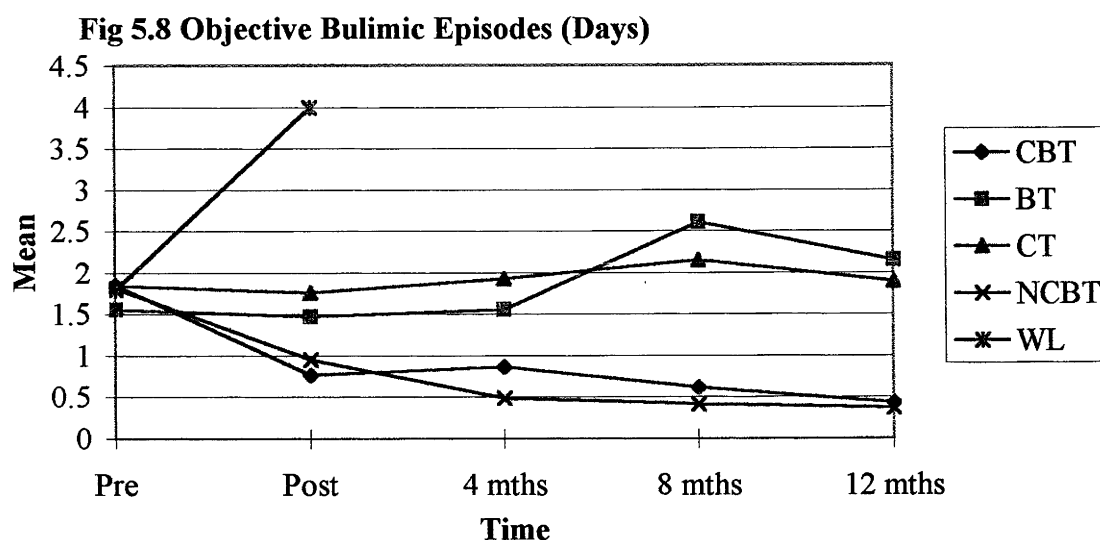
Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	1.85	0.60	0.77	1.43	0.87	1.74	0.62	1.25	0.43	1.50
BT	1.56	0.89	1.47	1.83	1.56	2.25	2.61	2.84	2.15	2.73
CT	1.84	0.66	1.76	2.04	1.93	2.37	2.15	2.15	1.90	1.44
NCBT	1.81	0.55	0.95	0.90	0.49	0.70	0.42	0.68	0.37	0.71
WL	1.80	0.63	4.00	1.91						

There were no significant pre-treatment differences between groups on this variable.

MANOVA results indicate a significant time effect ($F=88.10$, $p<0.0001$) and a significant group by time effect ($F=9.42$, $p<0.0001$).

After treatment, one way ANOVA indicated a significant difference between all treatment groups and WL ($F=7.56$, $p<0.0001$). At 12 months follow up CBT differed significantly from BT and CT, but not NCBT ($F=4.23$, $p<0.009$).

Results here are similar to those for subjective loss of control (Table 5.14). That is, while all treatment groups had significantly lower scores than WL at the end of treatment, the above frequencies indicate that both CBT and NCBT maintained their improvements better than any other group over follow-up.



Question 6, measuring the duration of a binge.

Table 5.16 Duration of binge

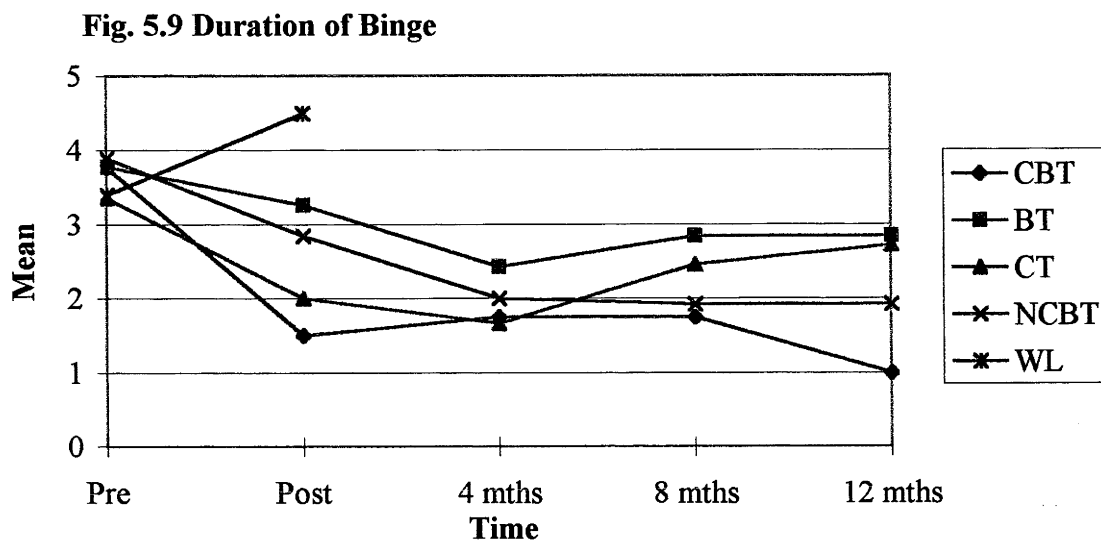
Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	3.77	1.47	1.50	1.88	1.75	1.84	1.75	2.32	1.00	1.82
BT	3.78	1.58	3.26	1.52	2.43	2.03	2.84	2.23	2.84	2.23
CT	3.35	1.53	2.00	1.65	1.66	2.02	2.46	2.25	2.72	2.19
NCBT	3.89	1.14	2.84	1.95	2.00	2.28	1.92	2.36	1.92	2.36
WL	3.40	1.60	4.50	1.76						

Repeated measures MANOVA, measured pre-and post-treatment indicated a significant time effect ($F=23.34$, $p<.0001$) and a significant time by group effect ($F=7.29$, $p<.001$).

One-way ANOVA performed at the end of treatment indicated that CBT was significantly less than BT and WL, CT was significantly less than WL, but there was not a significant difference between NCBT and any other group ($F=6.15$, $p<.0002$).

Fig 5.9 below indicates that CBT resulted in the greatest reduction during treatment and this was the best maintained during follow up, although NCBT also maintained its result well over follow-up, although this effect was not strong enough to reach

statistical significance. No one-way ANOVAs performed at each of the follow-up times were significant.



Question 7 relates to perceived fullness after a binge.

Table 5.17 Fullness after bingeing

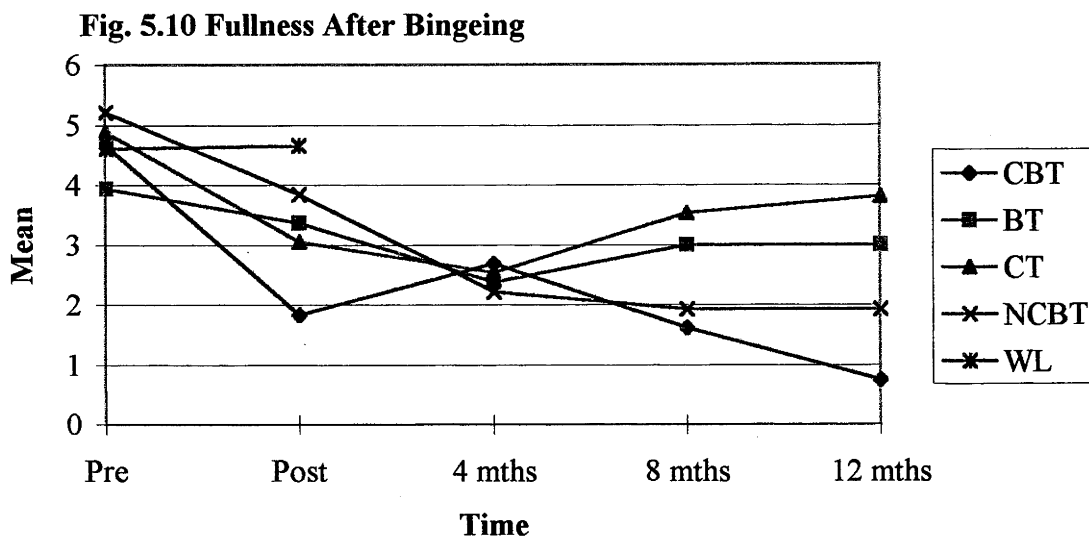
Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.66	1.57	1.83	2.06	2.68	2.60	1.62	2.06	0.75	1.43
BT	3.94	2.32	3.36	1.89	2.37	2.24	3.00	2.38	3.00	2.38
CT	4.88	1.86	3.05	2.43	2.53	2.79	3.53	2.87	3.81	2.71
NCBT	5.21	1.31	3.84	2.58	2.21	2.51	1.92	2.36	1.92	2.36
WL	4.60	1.90	4.65	1.95						

Repeated measures MANOVA indicated a significant pre-post time effect ($F=32.99$, $p<.0001$) and a significant group by time effect ($F=4.83$, $p<.001$).

One-way ANOVA performed after treatment indicated that CBT differed significantly from NCBT and WL ($F=4.20$, $p<.0037$). At 12 months, CBT differed significantly from BT and WL but not NCBT ($F=4.89$, $p<.004$).

Figure 5.10 indicates that initially the reduction in this variable was greater for CBT than NCBT but, over the long term, scores for both continued to decline compared to

BT and CT. However, only the difference between CBT and BT/CT was statistically significant at 12 months ($F=4.89$, $p<.004$).



Total Overeating score from the EDE.

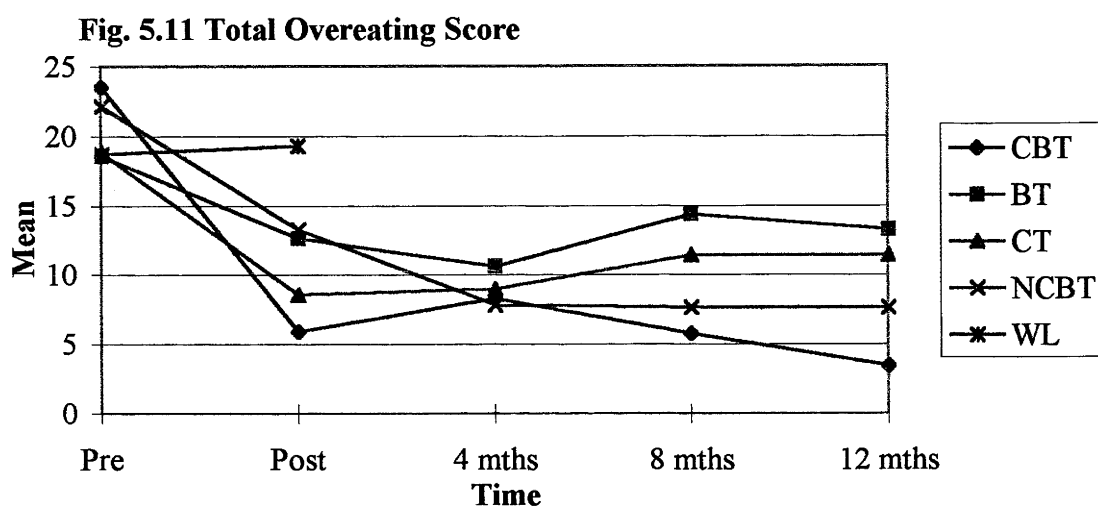
Table 5.18 Total Overeating Score.

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	23.55	6.49	5.94	5.87	8.31	8.13	5.81	7.45	3.50	5.80
BT	18.57	6.76	12.63	6.60	10.62	9.19	14.38	10.79	13.30	10.45
CT	18.82	6.88	8.58	6.65	9.00	10.14	11.46	9.85	11.45	7.80
NCBT	22.15	6.75	13.26	10.77	7.85	8.79	7.69	9.04	7.69	9.04
WL	18.70	5.45	19.30	6.61						

Unlike in Study Two, there were no significant pre-treatment differences between groups in this variable. Pre-post MANOVA indicated a significant time effect ($F=158.27$, $p<.0001$) and a significant time by group effect ($F=19.99$, $p<.009$).

One-way ANOVA performed at the end of treatment indicated that CBT differed significantly from NCBT and WL, and that all other groups (including NCBT) differed significantly from WL ($F=8.61$, $p<.0001$).

Figure 5.11 indicates that, initially, while CBT produced a greater reduction in the total overeating score, NCBT appeared to have a “delayed” effect, maintaining its score reductions well during follow-up, to be almost equivalent to CBT. The one-way ANOVA performed at 12 months indicated that CBT differed significantly from BT and CT only, but not from NCBT ($F=3.85$, $p<.01$).



The third group of questions measures a dimension called Eating Concern.

The first question measures preoccupation with eating.

Table 5.19 EDE Preoccupation with Eating

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.77	2.01	2.27	2.02	1.87	2.21	1.81	1.97	2.37	2.66
BT	4.26	2.40	2.84	2.79	3.00	2.65	3.53	2.40	2.23	2.31
CT	4.94	2.04	2.82	2.50	2.53	2.50	3.30	2.32	2.36	2.20
NCBT	5.47	1.12	3.00	2.18	2.14	2.21	2.61	2.43	2.53	2.36
WL	5.00	1.62	5.00	1.83						

Pre-post MANOVA results indicate a significant time effect ($F=45.51$, $p<.0001$) and a significant group by time effect ($F=3.60$, $p<.009$).

Table 5.19 indicates that all treatment groups experienced a reduction in this variable during treatment, and that these reductions were well-maintained over follow-up.

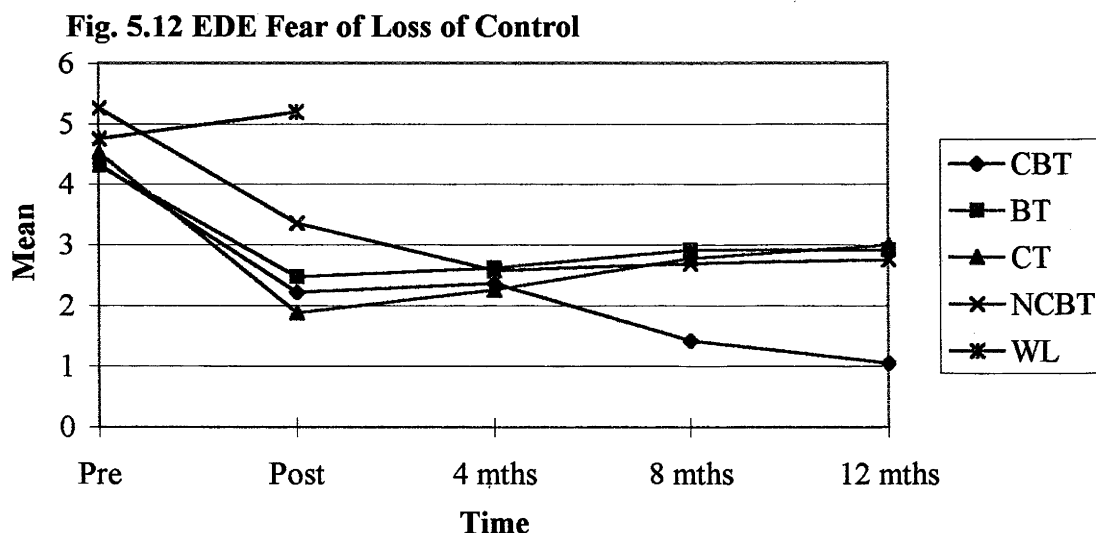
Post-treatment ANOVA indicated that all treatment groups differed significantly from the control group ($F=4.09$, $p<.004$). However, these differences became less significant during follow-up.

Question 2, measuring a fear of losing control over eating.

Table 5.20 EDE Fear of Loss of Control

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.33	2.16	2.22	2.10	2.37	2.33	1.43	1.86	1.06	1.56
BT	4.31	2.05	2.47	2.31	2.62	2.70	2.92	2.66	2.92	2.66
CT	4.52	2.15	1.88	1.88	2.26	2.49	2.76	2.61	3.00	2.14
NCBT	5.26	1.36	3.36	2.67	2.57	2.53	2.69	2.49	2.76	2.55
WL	4.75	1.77	5.20	5.20						

Pre-post MANOVA indicated a significant time effect ($F=39.34$, $p<.0001$) and a significant group by time effect ($F=4.51$, $p<.002$). This result is amplified by the post-treatment ANOVA result ($F=6.81$, $p<.0001$), where all groups differed significantly from WL. There were no significant differences between groups during follow-up.



The third question measures anxiety about, and avoidance of, eating in front of others.

Table 5.21 EDE Avoidance of Social Eating

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	2.55	1.72	1.22	1.59	1.56	2.09	1.31	1.92	0.93	1.23
BT	3.21	2.12	2.10	2.23	2.62	2.39	2.53	2.50	2.30	2.28
CT	2.29	2.17	1.17	2.00	0.93	1.53	1.76	2.16	2.00	2.14
NCBT	4.00	2.28	2.26	2.23	2.57	2.53	2.61	2.56	2.61	2.56
WL	2.70	2.10	3.20	2.39						

Pre-post MANOVA indicated a significant time effect ($F=16.51$, $p<.0001$) and a significant group by time effect ($F=2.78$, $p<.05$).

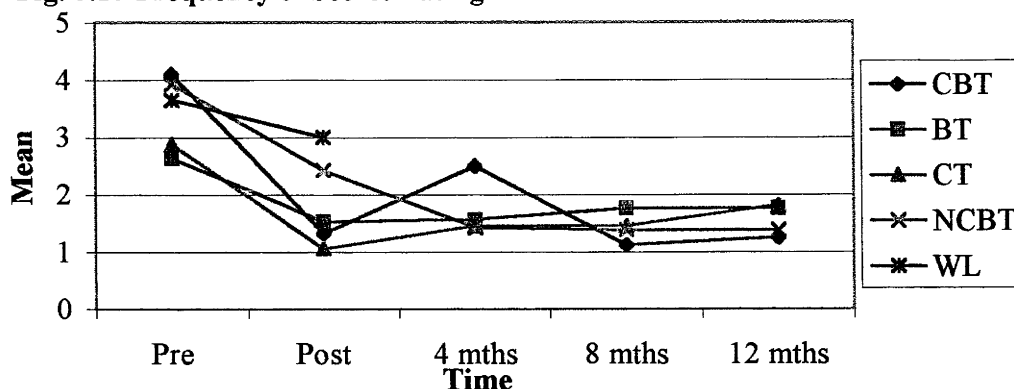
Post-treatment one-way ANOVA indicated that CBT and CT were individually significantly different from WL ($F=2.92$, $p<.05$), a difference which disappeared during follow-up.

Question 4, concerning the frequency of secret eating.

Table 5.22 EDE Frequency of Secret Eating

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.11	2.19	1.33	1.90	2.50	2.33	1.12	1.82	1.25	1.73
BT	2.63	2.47	1.52	1.77	1.56	1.75	1.76	2.24	1.76	2.24
CT	2.88	2.82	1.05	1.67	1.46	2.06	1.46	2.22	1.81	1.99
NCBT	3.94	2.14	2.42	2.16	1.42	1.82	1.38	1.66	1.38	1.66
WL	3.65	2.36	3.00	2.49						

Fig. 5.13 Frequency of Secret Eating



Pre-post MANOVA indicated a significant time effect only ($F=36.94$, $p<.0001$).

Post-treatment ANOVA indicated that only CT differed significantly from WL at the end of treatment ($F=2.99$, $p<.05$). There were no significant differences between treatment groups during follow-up.

The fifth Eating Concern question measures degree of guilt experienced by the respondent after any eating (not just a binge). In Study Two there were no significant differences between groups in this variable. In the present study, however, there were significant time and group effect as indicated by the MANOVA results.

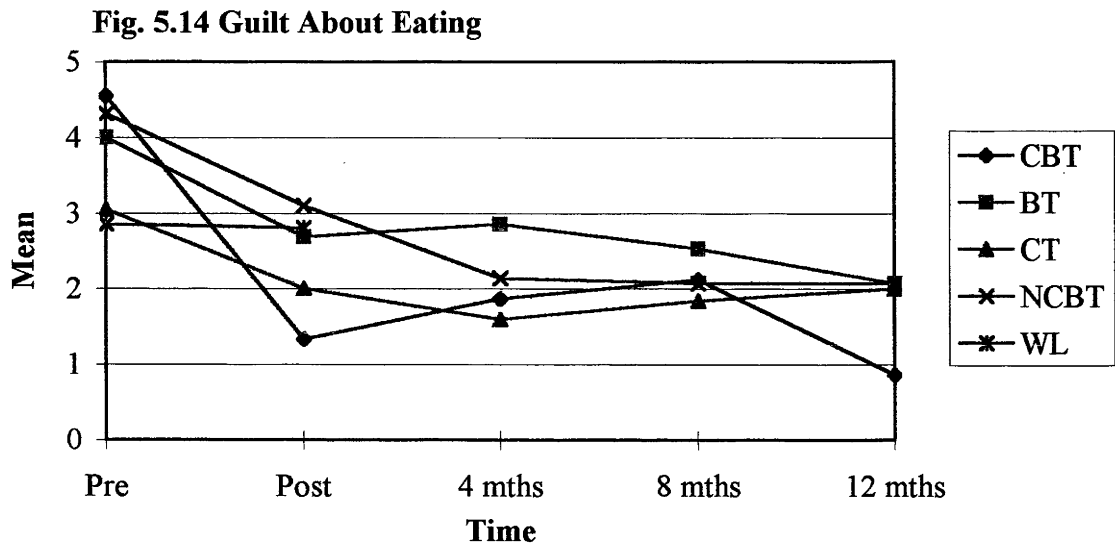
Table 5.23 EDE Guilt about Eating

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.55	2.38	1.33	1.49	1.87	1.74	2.12	1.74	0.87	1.25
BT	4.00	1.88	2.68	2.60	2.75	2.49	2.53	2.63	2.07	2.49
CT	3.05	2.58	2.00	2.50	1.60	2.32	1.84	2.40	2.00	2.19
NCBT	4.31	2.49	3.10	2.78	2.14	2.50	2.07	2.59	2.07	2.59
WL	2.85	2.51	2.80	2.48						

There were no significant pre-treatment differences between groups in this variable.

Pre-post MANOVA indicated a significant time effect ($F=18.26$, $p<.0001$) and a significant group by time effect ($F=2.58$, $p<.05$). However no ANOVA results were significant. While there were no significant differences between groups, either post-

treatment or follow-up, the above frequencies suggest that CBT experienced the greatest reduction and maintenance effect in this variable.



Total Eating Concern score (the sum of the above five subtests).

Table 5.24 EDE Total Eating Concern Score

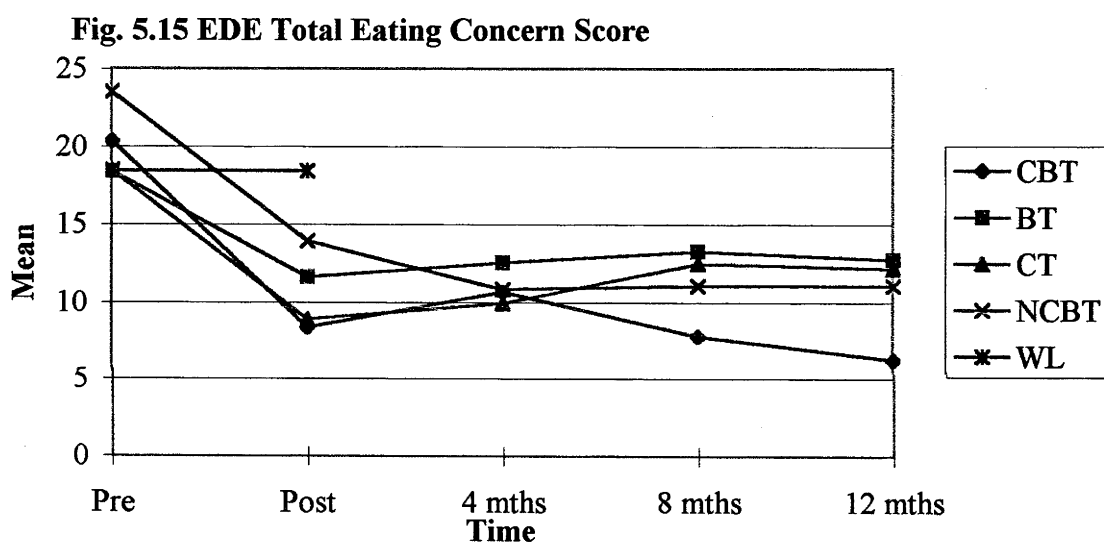
Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	20.38	6.86	8.38	6.43	10.68	9.93	7.81	6.92	6.31	4.37
BT	18.42	7.66	11.63	8.46	12.56	10.15	13.30	10.91	12.76	10.44
CT	18.47	6.98	8.94	8.82	9.93	10.02	12.53	10.31	12.18	9.33
NCBT	23.52	5.65	13.94	10.52	10.85	10.18	11.07	10.37	11.07	10.37
WL	18.50	6.61	18.45	6.85						

Pre-post MANOVA indicated a significant time effect ($F=75.69$, $p<.0001$) and a significant group by time effect ($F=5.80$, $p<.0001$).

One-way ANOVA performed at the end of treatment indicated that CBT, CT, BT were individually significantly different from WL, and that NCBT was not significantly different from WL ($F=4.60$, $p<.002$).

Figure 5.15 indicates that all treatment groups had a significant decline in this score during treatment, the greatest change occurring in CBT. While NCBT had a reduction in this score after treatment, it did not differ significantly from WL at this point.

There were no significant differences between groups during follow-up, although figure 5.15 indicates that improvements were well-maintained during follow-up for CBT, less well for NCBT, both of whom had lower scores at 12 months than CT or BT.



The fourth group of EDE questions measures shape concern. One subtest and the total had significant pre-treatment differences and were subjected to MANCOVAs. These results were not significant.

The first question measures degree of dissatisfaction with shape.

Table 5.25 EDE Dissatisfaction with Shape

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.00	1.81	2.38	2.03	2.56	2.15	2.18	1.97	2.12	1.89
BT	3.57	2.06	2.78	2.12	2.75	2.32	3.46	2.56	3.30	2.46
CT	4.29	1.35	2.88	2.17	2.73	2.18	3.00	2.48	2.54	2.50
NCBT	5.26	1.24	3.78	2.46	2.71	2.49	3.00	2.64	2.69	2.33
WL	4.40	1.93	4.70	1.92						

Pre-post MANOVA indicates a significant time effect ($F=19.39$, $p<.0001$) and a significant group by time effect ($F=2.45$, $p<.05$).

Post-treatment ANOVA indicated that CBT, CT and BT were all significantly lower than WL. NCBT did not differ significantly from WL ($F=3.59$, $p<.009$). There were no significant differences between treatment groups on this variable during follow-up.

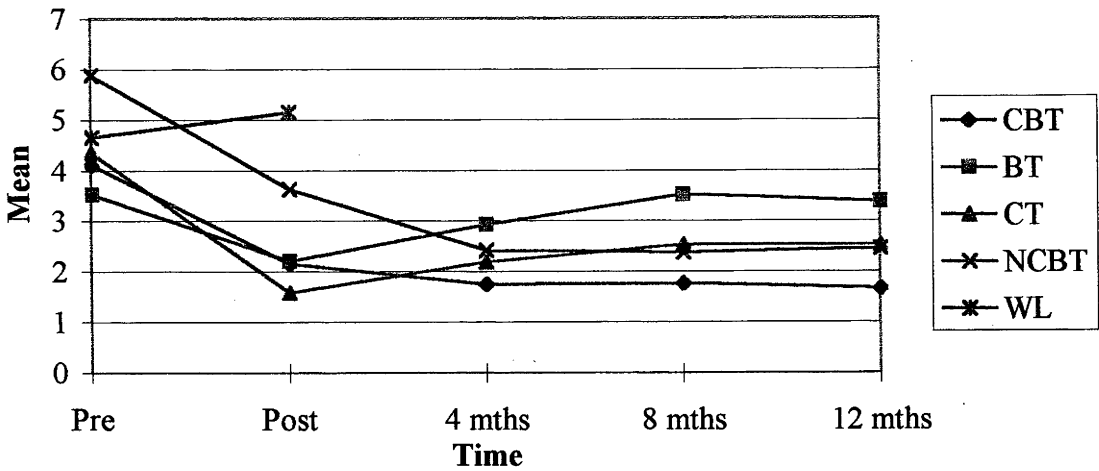
Question 2 measures preoccupation with shape. There was a significant pre-treatment difference between groups, so this variable was subjected to a MANCOVA. These results indicated a significant time effect only ($F=2.57$, $p<.05$).

Table 5.26 EDE Preoccupation with Shape

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.11	2.37	2.16	2.70	1.75	2.38	1.75	2.49	1.68	1.62
BT	3.52	2.75	2.21	2.52	2.93	2.32	3.53	2.06	3.38	1.93
CT	4.35	2.47	1.58	1.93	2.20	2.30	2.53	2.29	2.54	2.11
NCBT	5.89	0.45	3.63	2.31	2.42	2.31	2.38	2.25	2.46	2.33
WL	4.65	2.23	5.15	1.59						

Figure 5.17 reveals that both CBT and NCBT experienced parallel courses, with significant pre-post reductions and good maintenance effects. CT and BT had less dramatic initial reductions and were less well maintained during follow-up.

Fig 5.17 EDE Preoccupation With Shape



Question 3 measures the importance of shape to respondents.

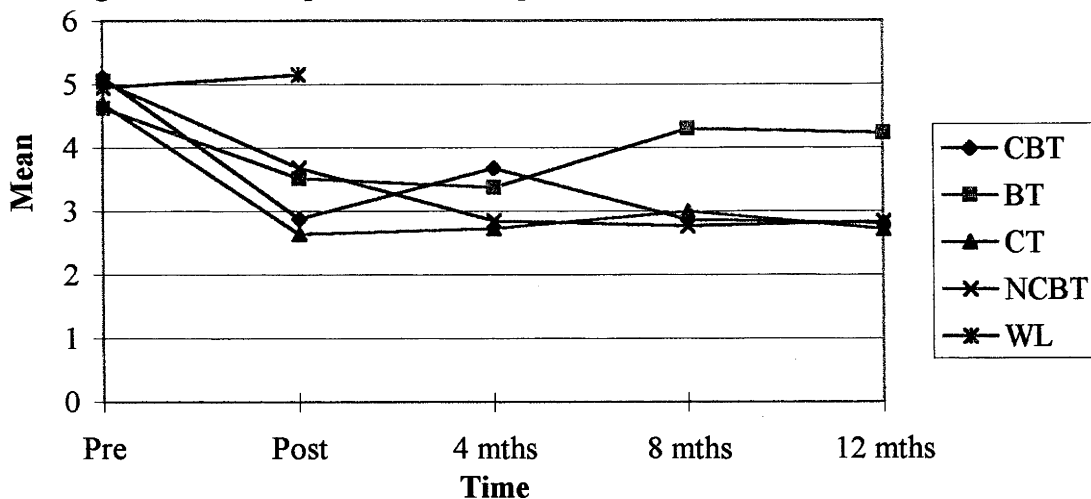
Table 5.27 EDE Importance of Shape

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	5.11	1.13	2.88	2.02	3.68	1.88	2.87	2.20	2.81	1.72
BT	4.63	1.60	3.52	1.83	3.37	2.15	4.30	1.75	4.23	1.69
CT	4.70	1.82	2.64	2.05	2.73	2.28	3.00	2.51	2.72	2.32
NCBT	5.05	1.22	3.68	2.28	2.85	2.62	2.77	2.45	2.84	2.54
WL	4.95	1.57	5.15	1.66						

There were no significant differences between groups before treatment.

Pre-post MANOVA indicates a significant time effect ($F=40.00$, $p<.0001$) and a significant group by time effect ($F=3.53$, $p<.01$).

One-way ANOVA at the end of treatment indicates that CBT and CT were significantly less than WL ($F=3.89$, $p<.005$). Neither BT nor NCBT differed significantly from WL at this stage. Between group differences disappeared during follow-up.

Fig. 5.18 EDE Importance of Shape

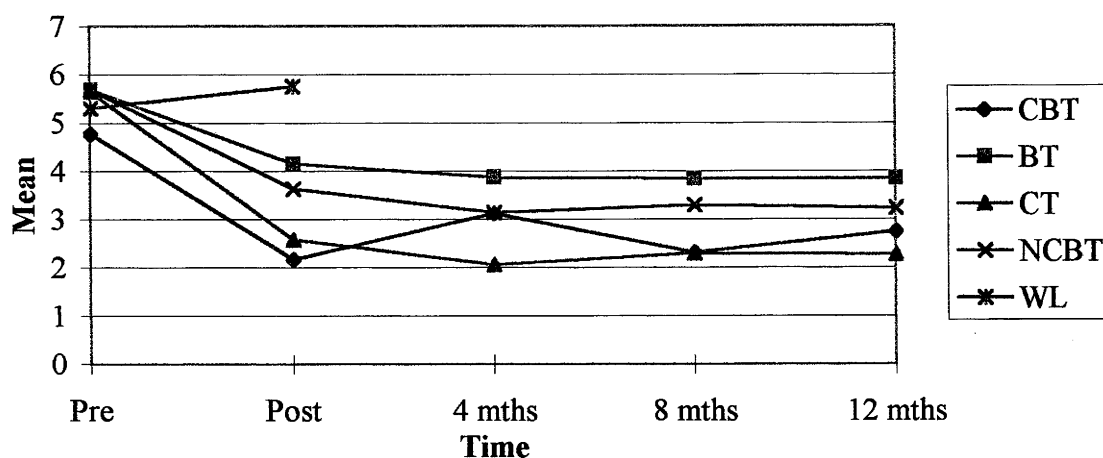
The fourth question measures a variable called fear of fatness.

Table 5.28 EDE Fear of Fatness Scale

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.77	2.18	2.16	2.20	3.12	2.50	2.31	2.24	2.75	2.20
BT	5.68	1.15	4.15	2.40	3.87	2.41	3.84	2.19	3.84	2.19
CT	5.64	1.45	2.58	2.42	2.06	2.34	2.30	2.56	2.27	2.64
NCBT	5.68	1.37	3.63	2.79	3.14	2.65	3.30	2.86	3.23	2.80
WL	5.30	1.65	5.75	1.11						

Pre-post MANOVA indicates a significant time effect ($F=52.66$, $p<.0001$) and a significant group by time effect ($F=6.50$, $p<.0001$).

The post-treatment ANOVA indicates that CBT was significantly less than both BT and WL, while all other treatment groups were significantly less than WL alone ($F=7.48$, $p<.0001$). The between groups differences were not significant during the follow-up period.

Fig. 5.19 EDE Fear of Fatness

The seventh question measured how often the respondent “felt” fat.

Table 5.29 EDE Feelings of Fatness

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.44	2.06	2.50	2.25	2.68	2.35	2.37	2.06	2.31	2.02
BT	3.94	1.89	3.21	2.34	3.06	2.40	3.76	2.00	3.76	2.00
CT	5.17	1.70	2.52	2.50	2.80	2.33	3.15	2.44	3.27	2.53
NCBT	5.00	1.82	3.10	2.55	1.07	2.67	3.15	2.76	3.15	2.76
WL	4.40	1.95	4.95	1.87						

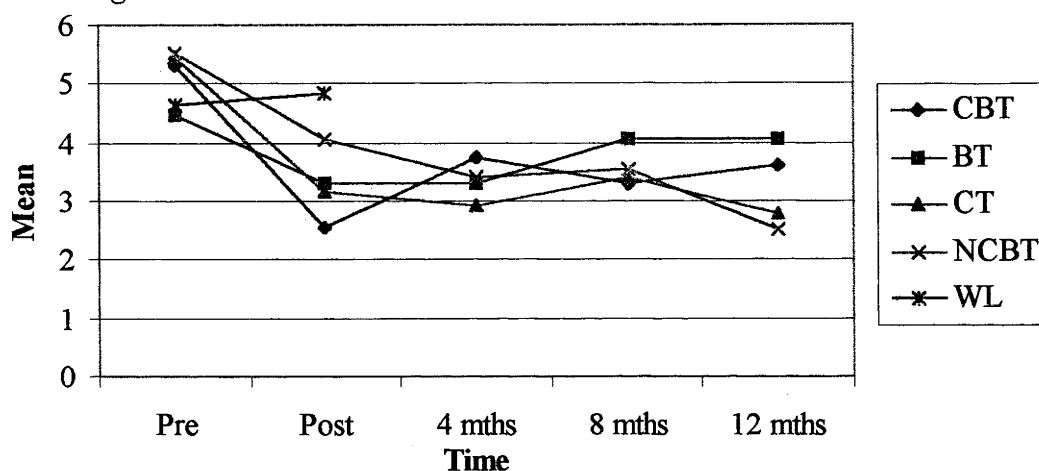
Pre-post MANOVA indicates a significant time effect ($F=30.97$, $p<.0001$) and a significant group by time effect ($F=5.60$, $p<.0001$).

Post-treatment one-way ANOVA indicated that all treatment groups differed significantly from the control group ($F=3.59$, $p<.009$). There were no significant differences between groups during follow-up.

The last question asked patients to rate the frequency with which they wanted to have a flat stomach.

Table 5.30 EDE Desire for Flat Stomach

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	5.33	1.64	2.55	2.68	3.75	2.26	3.31	2.49	3.62	2.36
BT	4.47	2.34	3.31	2.76	3.31	2.46	4.07	2.28	4.07	2.28
CT	5.47	1.58	3.17	2.50	2.93	2.73	3.40	2.50	2.81	2.52
NCBT	5.52	1.17	4.05	2.59	3.42	2.87	3.53	2.96	3.53	2.96
WL	4.65	2.30	4.85	2.05						

Fig. 5.19 EDE Desire for Flat Stomach

Pre-post MANOVA indicated that there was a significant time effect ($F=32.63$, $p<.0001$) and a significant group by time effect ($F=3.90$, $p<.006$).

One-way ANOVAs performed pre, post and during follow-up were not significant.

However, the above table suggests that NCBT reduced its score least (pre-post).

However, the NCBT score continued to decline during follow-up (along with CT) whereas CBT and BT were less well maintained.

The fifth dimension of the EDE measures weight concern. Of the five questions two had significant pre-treatment differences and were analysed with MANCOVAs, which proved to be non-significant, as was the case with the total weight concern score.

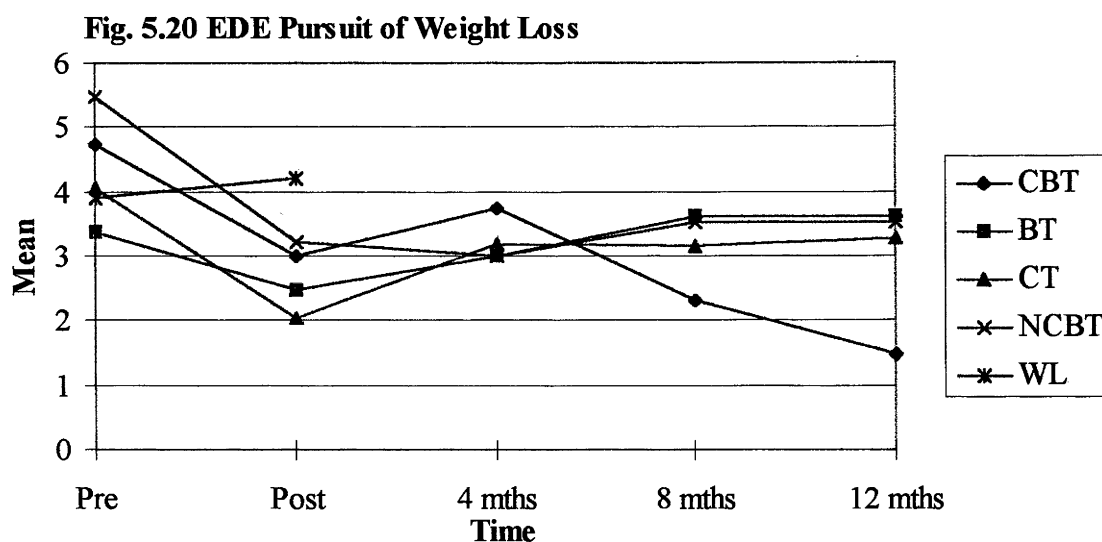
The first question of the weight concern dimension measured respondents' "strong desire" to lose weight, and pursuit of this object.

Table 5.31 EDE Desire to Lose Weight

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.72	2.19	3.00	2.82	3.75	2.72	2.31	2.46	1.50	2.16
BT	3.36	2.92	2.47	2.65	3.00	2.65	3.61	2.36	3.61	2.36
CT	4.05	2.63	2.05	2.63	3.20	2.88	3.15	2.88	3.27	2.83
NCBT	5.47	1.50	3.21	2.61	3.00	2.48	3.53	2.53	3.53	2.53
WL	3.90	2.57	4.20	2.60						

None of the one-way ANOVAs were significant. However, the pre-post MANOVA indicated a significant time effect ($F=24.91$, $p<.0001$) and a significant time by group effect ($F=3.24$, $p<.05$).

As can be seen from the above table, all groups experienced a reduction in pre-post scores, but that of CBT was better maintained during follow-up.



The second weight concern question measures respondents' dissatisfaction with their weight.

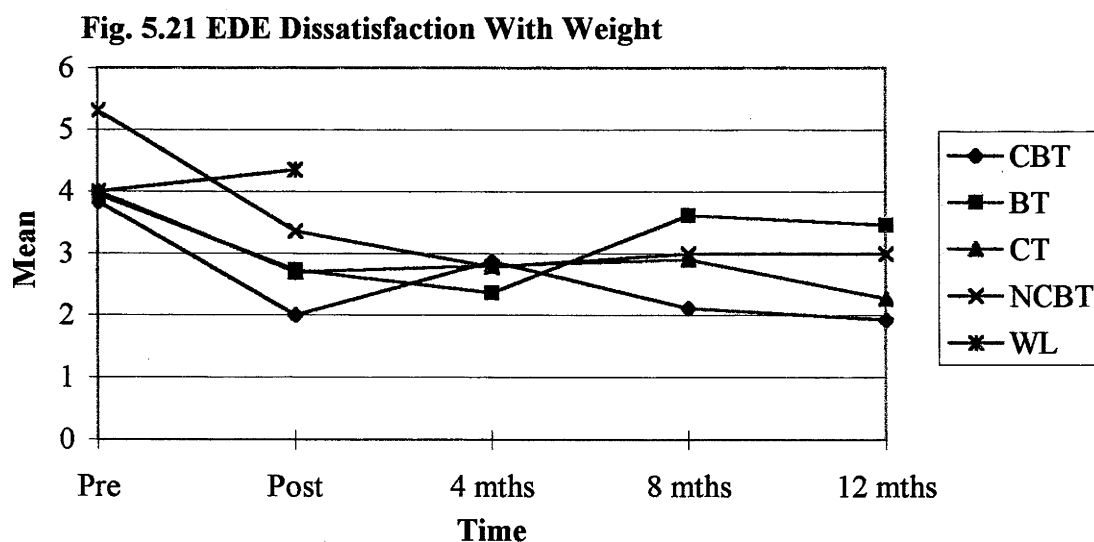
Table 5.32 EDE Dissatisfaction with Weight

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	3.83	2.06	2.00	2.22	2.87	2.27	2.12	2.36	1.93	1.87
BT	3.94	1.98	2.73	2.30	2.37	2.65	3.61	2.39	3.46	2.29
CT	4.00	2.20	2.70	2.33	2.80	2.30	2.92	2.39	2.27	2.14
NCBT	5.31	1.56	3.36	2.71	2.78	2.66	3.00	2.64	3.00	2.64
WL	4.00	2.17	4.35	1.98						

Pre-post MANOVA indicated a significant time effect ($F=22.96$, $P<.0001$) and a significant group by time effect ($F=2.90$, $p<.05$).

Post-treatment ANOVA indicated that CBT only was significantly less than WL ($F=2.75$, $p<.05$).

There were no significant differences between groups at any stage of follow-up, but the above frequencies suggest that CBT maintained its improvement better than the other three groups during follow-up.



The fifth question asked about the importance of weight in respondents' lives.

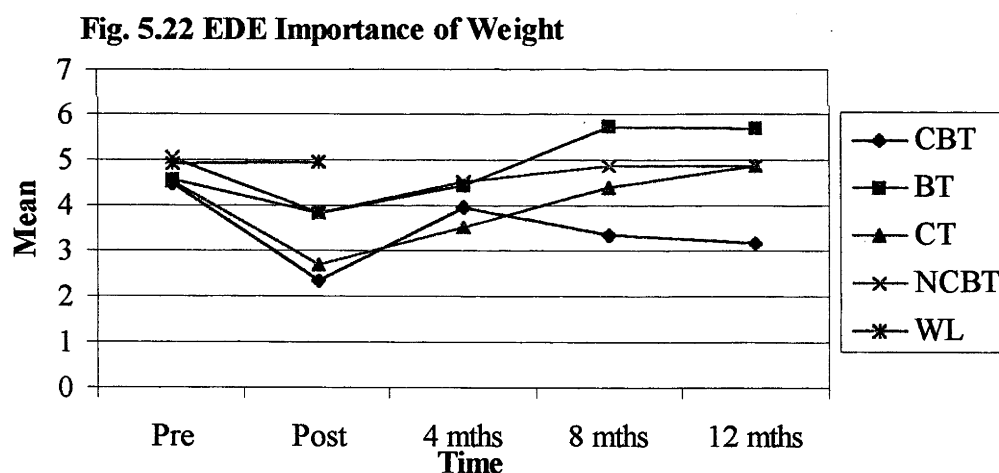
Table 5.33 EDE Importance of Weight

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.50	1.75	2.33	2.00	3.94	2.50	3.33	2.84	3.16	2.72
BT	4.57	1.38	3.84	1.77	4.42	3.00	5.73	2.72	5.68	2.72
CT	4.52	1.80	2.70	2.02	3.58	2.91	4.41	3.37	4.88	3.65
NCBT	5.05	1.12	3.84	2.33	4.52	3.53	4.89	3.54	4.89	3.54
WL	4.90	1.37	4.95	1.50						

Pre-post MANOVA indicated a significant time effect ($F=36.40$, $p<.0001$) and a significant time by group effect ($F=4.14$, $p<.004$).

The post-treatment ANOVA indicated that CBT and CT were significantly less than WL, but NCBT and BT were not ($F=5.38$, $p<.0006$).

Although the above table suggests that CBT maintained its effect better during follow-up, the one-way ANOVAs at follow up were not significant.



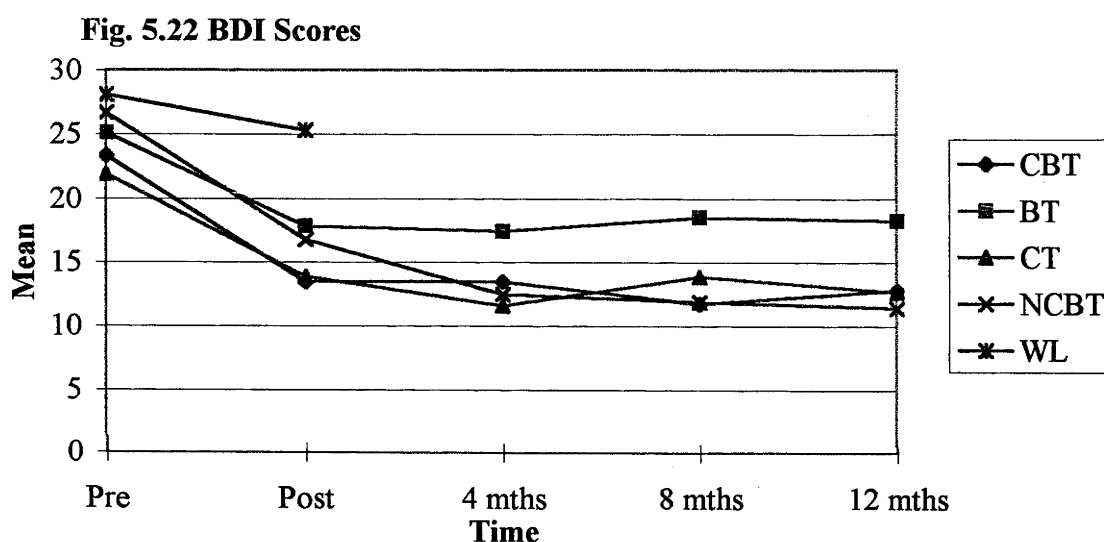
f.) Depression score, as measured by the Beck Depression Inventory.

Table 5.34 BDI Scores

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	23.37	12.54	13.50	12.94	13.50	11.84	11.75	13.16	12.87	12.59
BT	25.10	8.76	17.84	12.10	17.43	16.12	18.53	16.50	18.30	16.87
CT	21.94	10.97	13.88	11.90	11.60	12.69	13.92	12.90	12.72	14.05
NCBT	26.73	8.68	16.78	11.91	12.50	10.58	11.92	11.65	11.46	11.09
WL	28.10	12.03	25.30	11.63						

Pre-post MANOVA indicated a significant time effect ($F=51.98, p<0001$), whereby depression levels for all treatment groups declined.

Post-treatment ANOVA indicates that only CT and CBT differed significantly from WL ($F=2.96, p<.05$). There were no differences between groups during follow-up, although Figure 5.22 Indicates that NCBT's depression score continued to decline during follow-up.



g.) Eating Disorder Inventory (EDI) scores.

Table 5.35 EDI Drive for Thinness Score

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	15.77	5.45	11.00	7.67	11.50	7.59	9.75	6.80	7.87	7.48
BT	17.10	3.31	14.21	4.98	11.56	6.53	11.69	8.05	11.30	7.95
CT	14.82	4.91	11.05	6.14	8.20	7.04	9.15	7.27	7.90	8.12
NCBT	16.63	3.68	10.68	7.19	8.42	8.58	9.07	7.84	9.07	7.84
WL	16.10	4.99	15.85	5.12						

Pre-post MANOVA indicated a significant time effect ($F=36.98, p<0001$) and group by time effect ($F=2.91, p<.026$).

One-way ANOVA at the end of treatment indicated a significant between group effect ($F=2.66$, $p<.05$) but no two groups were significant at the .05 level. There were no significant differences between groups during the follow-up period, although the above frequencies suggest that CBT results were better maintained than those of other treatment groups during follow-up.

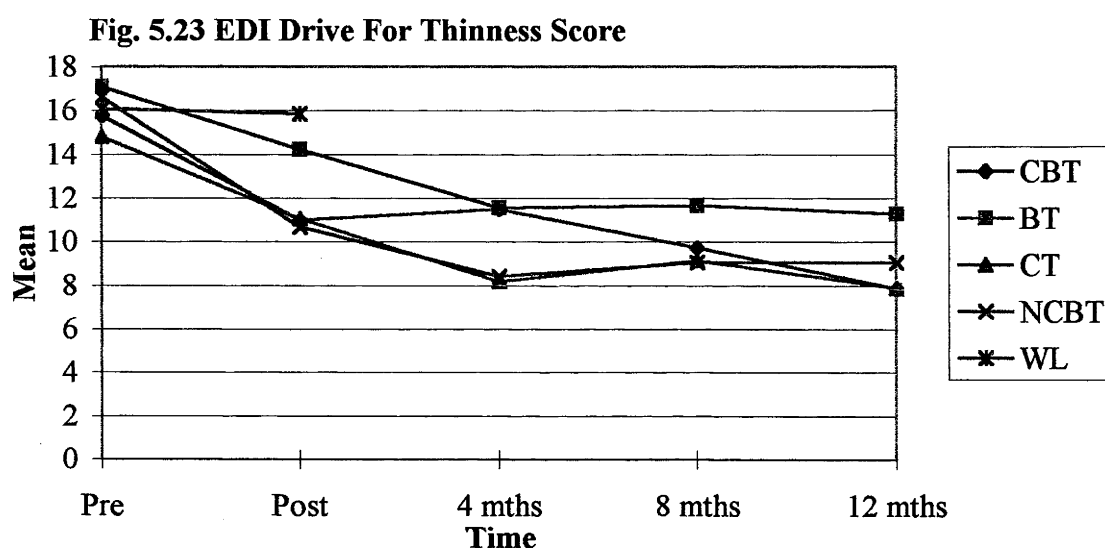


Table 5.36 EDI Bulimia Score

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	11.50	5.17	5.44	4.54	7.62	6.30	5.93	5.43	3.93	4.68
BT	10.94	6.65	6.78	5.45	5.43	6.52	5.76	7.33	6.00	7.42
CT	11.82	6.06	6.11	5.51	4.60	7.10	5.92	6.95	5.18	6.14
NCBT	10.78	5.97	6.36	6.08	4.21	5.07	4.69	4.90	6.00	6.44
WL	12.00	5.59	11.90	6.43						

Pre-post MANOVA indicated a significant time effect ($F=53.61$, $p<.0001$) and a significant group by time effect ($F=53.61$, $p<.007$).

Post-treatment ANOVA was also significant ($F=4.11$, $P<.004$) All treatment groups having a significantly lower score than the control group.

One-way ANOVAs calculated for each of the follow-up times were not significant.

Table 5.37 EDI Body Dissatisfaction Score

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	17.50	7.17	15.16	9.03	16.00	9.18	14.25	8.92	12.31	7.92
BT	18.36	7.05	16.73	8.36	13.87	9.44	14.84	9.60	14.23	9.14
CT	20.52	6.72	16.52	8.30	12.60	9.34	14.00	9.63	12.63	9.81
NCBT	20.89	7.34	15.00	9.96	11.35	9.73	12.69	10.20	14.15	9.74
WL	21.35	7.97	21.15	7.41						

None of the one-way ANOVAs were significant, but the pre-post MANOVA

indicated a significant time effect ($F=16.09$, $p<0.0001$).

As can be seen in Table 5.37, all treatment groups reduced their body dissatisfaction scores during treatment and this trend continued during follow-up.

Table 5.38 EDI Ineffectiveness Score.

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	12.05	8.09	7.61	7.97	9.25	9.48	7.31	7.53	5.43	6.90
BT	10.68	5.73	9.68	6.40	10.12	9.50	11.69	10.75	11.53	10.64
CT	12.11	7.04	9.52	8.49	6.26	6.89	6.84	6.37	5.81	7.34
NCBT	13.15	6.48	9.42	6.65	6.57	6.69	6.23	6.50	8.46	9.04
WL	15.70	8.53	13.25	7.89						

None of the one-way ANOVAs were significant, but the pre-post MANOVA

indicated a significant time effect ($F=19.84$, $p<0.0001$).

The above table indicates that all groups reduced their Ineffectiveness score during treatment, this reduction appearing greatest for the CBT group, both during treatment and follow-up. BT's participants increased their scores. CT and NCBT also had reduced scores during treatment and follow-up, but this reduction was not as great as that for CBT.

There were no significant changes in the EDI Perfectionism scale.

Table 5.39 EDI Interpersonal Distrust Score

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	6.94	5.65	4.83	4.29	5.25	6.34	3.50	3.36	4.12	4.37
BT	6.36	5.15	5.15	4.75	5.18	6.47	5.07	6.26	4.77	6.04
CT	5.41	4.16	3.47	3.77	2.53	3.83	2.84	4.21	2.09	2.58
NCBT	6.73	4.31	5.52	4.35	4.57	5.03	4.38	5.18	4.38	5.18
WL	7.00	5.59	6.95	5.58						

None of the one-way ANOVAs were significant, but the pre-post MANOVA

indicated a significant time effect ($F=11.35$, $p<.0001$).

As can be seen from the table above, all treatment groups reduced their scores in Interpersonal Distrust during treatment and also during follow-up, but the differences between groups were not significant.

Table 5.40 EDI Interoceptive Awareness Score.

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	12.88	5.96	9.27	8.09	8.81	8.09	7.50	8.03	6.56	6.25
BT	13.63	6.67	10.78	6.32	7.81	7.86	9.92	9.61	10.00	9.60
CT	13.70	8.65	7.11	7.25	4.93	7.30	6.53	7.81	6.81	8.20
NCBT	16.63	6.59	10.31	9.38	6.50	9.01	7.69	9.10	7.69	9.10
WL	15.70	6.73	14.15	7.78						

There were no significant differences between groups at any time, as indicated by the one-way ANOVAs.

Pre-post MANOVA indicated a significant time effect ($F=30.68$, $p<.0001$). The above table indicates that all treatment groups experienced a reduction in their Interoceptive Awareness scores during treatment and all groups, except BT group, continued to reduce their scores during follow-up, however, not enough to reach statistical significance.

Table 5.41 EDI Maturity Fears Score

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	4.66	4.48	3.77	4.30	3.87	4.50	3.81	3.95	3.75	3.71
BT	4.89	5.53	5.31	5.87	4.25	3.78	4.61	3.94	4.07	3.45
CT	4.47	4.78	4.70	6.27	1.60	1.29	1.69	1.43	1.00	1.18
NCBT	7.89	6.76	4.36	4.92	2.07	2.12	2.23	2.00	2.23	2.00
WL	6.45	6.04	5.60	6.33						

Pre-post MANOVA indicated a significant time effect ($F=4.86$, $p<.05$) and a

significant group by time effect ($F=2.87$, $p<.05$).

One-way ANOVA at 12 months follow-up was significant ($F=2.95$, $p<.05$), with CT group having a significantly lower score than CBT only. As can be seen from the above table, the NCBT group's score also declined over the measurement period, but not as significantly as that of the CT group.

Table 5.42 Total EDI Score

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	88.61	29.27	65.83	38.98	70.25	47.21	78.80	37.79	50.68	36.94
BT	89.00	26.44	74.10	31.99	63.00	45.59	74.10	37.76	66.46	53.51
CT	89.88	29.16	63.47	36.48	46.53	37.42	68.79	26.29	47.81	37.85
NCBT	99.63	24.49	68.31	39.71	48.07	42.95	52.23	41.18	52.30	41.08
WL	102.6	33.68	95.95	32.62						

Pre-post MANOVA indicated a significant time effect ($F=50.81$, $p<.0001$) and a significant group by time effect ($F=2.41$, $p<.05$).

Post-treatment ANOVA indicated a significant difference between groups

($F=2.89$, $p<.05$) where only NCBT differed significantly from the control group. There were no significant differences between treatment groups in this variable during follow-up.

h.) General psychopathology scores (POMS).

The POMS Vigour subtest was not significant.

Table 5.43 POMS Tension Score

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	19.38	8.20	14.83	9.76	12.62	8.95	15.12	9.17	14.62	9.05
BT	20.36	7.98	17.10	8.97	13.43	8.85	15.30	8.44	16.00	8.01
CT	18.52	7.62	14.23	8.60	12.80	10.96	14.92	11.19	13.54	10.97
NCBT	20.78	5.78	14.73	9.35	10.78	9.07	11.61	8.87	11.61	8.87
WL	21.20	8.28	19.90	7.90						

Pre-post MANOVA indicated a significant time effect ($F=18.97$, $p<.0001$). The above table indicates that all groups reduced their tension score pre-to post-treatment, and during follow-up. It appears from the above table that NCBT had the lowest score on this variable, but the difference between it and scores obtained by the other groups was not great enough to reach statistical significance, as indicated by the non-significant group by time MANOVA, and the non-significant ANOVAs.

Table 5.44 POMS Depression Score

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	35.00	15.93	18.44	15.65	19.43	18.16	22.18	17.01	20.31	18.01
BT	33.47	14.01	27.05	13.70	14.94	14.94	22.76	14.30	23.23	14.98
CT	32.41	16.10	19.17	16.41	17.20	16.81	19.92	16.41	17.27	14.28
NCBT	31.31	8.64	20.84	14.19	16.42	16.16	15.92	15.07	15.92	15.07
WL	36.95	8.64	32.20	15.75						

Pre-post MANOVA indicated a significant time effect ($F=44.32$, $p<.0001$).

One-way ANOVA at the end of treatment indicated that only CBT differed significantly from WL ($F=2.89$, $p<.05$). During follow-up there were no significant differences between groups.

Table 5.45 POMS Anger Score

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	18.72	13.08	13.38	11.90	14.18	14.01	13.56	13.35	13.31	12.90
BT	18.26	8.38	17.73	8.277	14.25	8.27	13.38	9.61	13.69	9.86
CT	20.05	11.23	12.94	9.94	12.46	11.40	15.07	11.18	12.45	9.39
NCBT	17.21	8.51	11.73	10.50	9.07	10.28	8.46	8.98	8.46	8.98
WL	22.60	12.04	20.10	11.68						

Pre-post MANOVA indicated a significant time effect ($F=19.52$, $p<.0001$). However, there were no significant ANOVA or group by time MANOVA results, indicating that all groups' scores declined pre-to-post treatment, but there were no significant differences between groups.

Table 5.46 POMS Fatigue Score

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	14.88	6.57	9.83	8.11	12.06	7.80	12.12	7.56	10.68	7.92
BT	15.21	6.90	13.57	6.85	9.93	5.11	14.07	6.29	14.15	6.32
CT	15.70	6.71	11.41	8.28	8.86	6.96	10.15	7.33	9.81	6.92
NCBT	18.63	5.42	13.84	8.92	10.42	8.76	10.61	8.72	10.61	8.72
WL	18.10	5.56	16.05	7.29						

Pre-post MANOVA indicated a significant time effect ($F=19.09$, $p<.0001$). As with the Anger score, there was a significant decrease in Fatigue scores for all subjects, particularly pre-to post-treatment, but there were no significant differences between subjects during follow-up. This was also the case for the Confusion score below.

Table 5.47 POMS Confusion Score

Group	Pre		Post		4 mths		8 mths		12 mths	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CBT	15.22	6.04	10.55	6.95	11.06	7.07	11.81	7.03	12.87	7.36
BT	14.84	3.93	13.57	6.12	11.43	6.89	12.38	6.65	12.53	6.76
CT	16.11	6.65	11.35	7.47	10.46	7.97	12.38	7.86	11.18	8.15
NCBT	16.47	4.76	12.10	7.49	9.00	7.41	9.69	8.70	8.92	7.04
WL	15.50	6.21	14.30	4.91						

Pre-post MANOVA indicated a significant time effect only ($F=22.61$, $p<.0001$).

There were no significant ANOVA scores.

5.7 DISCUSSION OF RESULTS

Before treatment NCBT group did not differ significantly from the previous three treatment groups or control group apart from scores in some EDE subtests. When these particular items were analysed by MANCOVAs, results were non-significant, with two exceptions, in neither of which was NCBT significantly different from other treatment groups.

Tables and graphs discussed above indicate that, generally, the new group CBT resulted in a decline in many bulimic symptoms, behavioural and psychological, and these changes were maintained over follow-up.

Tables 5.2, 5.3 and 5.4 provide an overview of the success of the new form of CBT, compared with Fairburn's manual-based CBT. Results indicated that a relatively brief (in this case, of five weeks) group treatment could reduce frequencies of bingeing and purging. Table 5.2 indicates that patients who received traditional CBT were least likely to meet DSMIII-R criteria for bulimia nervosa both after treatment and at 12 months' follow-up. In this respect, NCBT was not as successful as CBT, was as successful as CT and was more successful than BT.

A similar picture emerged from Tables 5.3 and 5.4 where, again, higher percentages of CBT patients were abstinent from bingeing and vomiting after treatment (55% and 44%) respectively) compared with 26% and 31% respectively for the NCBT group. A similar result was obtained at 12 month follow-up. In terms of helping patients become abstinent from bingeing and vomiting, NCBT was more successful than either CT or BT in the long term (26% abstinent from bingeing at 12 months compared with 17% and 5%, and 26% abstinent from vomiting at 12 months compared with 5% and

21% respectively.) However, in terms of reduction of bingeing and vomiting, NCBT was about as effective as CT, and less effective than CBT.

A more rigorous comparison between NCBT and other treatments was provided by a series of ANOVAs, MANOVAs and MANCOVAs performed on all variables, not just frequency of bingeing and vomiting. These results can be summarised as follows.

There were some general treatment effects. As in Chapter Four, general effects are defined as where all groups experienced a reduction in scores pre to post treatment and there are no significant differences between groups.

General treatment effects occurred in frequency of laxative use, and a number of EDE items, including two restraint variables; fear of losing control over eating and guilt about eating; preoccupation with shape; fear of, and feelings of fatness; desire to lose weight and in most EDI and POMS subtests.

There were also some differential treatment effects. These are defined, as in Study Two, where a particular treatment group differed significantly from the others.

In no variable did NCBT result in significantly greater symptom reduction than any other group from Study Two. In fact, NCBT was only “as good as” traditional CBT in one variable only, reduction of frequency of vomiting during treatment.

Participants in traditional CBT experienced significantly greater reductions than any other group in; frequency of bingeing; having strict dietary rules; subjective loss of control; duration of a binge; fullness after a binge; avoidance of eating in public; the importance of, and dissatisfaction with weight and shape; and depression, as measured by both the BDI and POMS. These differential effects occurred after treatment, as measured by the post-treatment ANOVAs. During follow-up, differences between groups were not statistically significant.

As in Study Two, the above results indicate that a short group form of CBT (in this case five weeks) can be effective in reducing a number of symptoms of bulimia, particularly psychological symptoms as measured by the EDE and EDI. These results support results in similar studies where CBT was found to produce greater and longer lasting reductions in bulimic symptomatology than BT (Wolf and Crowther, 1992; Thackwray et al., 1993). CBT was also more effective than ERP in the long term in reducing a number of bulimic symptoms (Cooper and Steere, 1995). The present results extend those obtained in Study Two, and earlier research mentioned above, indicating that to be successful, treatment for bulimia needs to incorporate both cognitive and behavioural elements. These findings reinforce Fairburn's assertion (1985, p161) that both cognitive and behavioural elements need to be retained in therapy for it to be effective.

However, NCBT was not as effective as CBT in a number of areas, as mentioned above, and also had a lower percentage of patients who met DSMIII-R criteria for bulimia nervosa both at the end of treatment and at 12 month follow-up. There are a number of possible explanations for these findings.

The most obvious explanation is that stimulus control instructions do need to be retained in the CBT package for it to be maximally effective. In Study Two it was found that the CT group was almost as effective as the CBT group in reducing a broad range of bulimic symptomatology. When the two treatment manuals were compared, only those parts of the CBT package which were not included in the CT package and which did not appear to relate to those dimensions on which full CBT was superior, were excluded from the new CBT package used in Study Three. In this study it was found that NCBT was not as successful as CBT in the dimensions listed above, thus indicating that stimulus control instructions may, indeed, be a vital element of CBT.

This could be that, as bulimia nervosa is a complex disorder, a multi-faceted treatment is more likely to be successful. Numerous studies (Fairburn et al., 1986, 1991; Garner et al., 1993; Wilson et al., 1986, 1991) have indicated that traditional CBT is superior to other psychotherapies in reducing the symptoms of bulimia nervosa. The dismantling studies (Cooper and Steere, 1985; Kirkley et al., 1985; Thackwray et al., 1993) have also found that parts of CBT were less effective than the whole “package”. It could simply be that it is not possible to meaningfully remove any one element from the whole package, ie. that all aspects of CBT are interdependent and that to remove one or two elements compromises treatment effectiveness.

The results obtained in Study Three also suggest a possible mechanism of action of stimulus control instructions which may result in improved treatment effectiveness.

As mentioned earlier, participants in CBT had a significantly lower frequency of bingeing after treatment than those in NCBT. They were also significantly less likely to be following strict dietary rules and feel themselves to be less out of control of their eating after treatment than was the case with NCBT participants. It is possible that instructions related to handling food-related situations are necessary for bulimics to lessen their dependence on having strict rules about eating as a means of having control over eating. This is suggested by the fact that CBT participants had significantly lower scores in dietary rules, and feeling out of control of their eating which is then reflected in a significantly lower binge frequency at the end of treatment. This finding indicates the importance of addressing the relationship between stimulus control and dietary restraint and supports Fairburn’s assertion that bingeing is a secondary response to extreme dietary restraint (1985, p.161).

Another interesting finding of the present study is that CBT patients had significantly lower levels of depression after treatment than NCBT patients. It appears that the

greater symptomatic reduction experienced by CBT patients was accompanied by a greater reduction in depression. It is beyond the scope of the present study, but a question that might be worth pursuing is whether the greater reduction in bulimic symptomatology was associated with the greater reduction in depression. If this were the case, it would lend support to the view that depression is a sequel to bulimia rather than bulimia being one form of an affective disorder (Hinz and Williamson, 1987).

Another possible explanation for the results of the present study is that perhaps the time variable had a crucial effect on the results. As mentioned earlier, NCBT was of 10 hours' duration, while all other treatment groups lasted for 14 hours. It could be that duration of treatment is in some way important in helping bulimics get to grips with their disordered cognitions and behaviours. This question could only be answered by extending the duration of NCBT to see if it becomes as effective as CBT in reducing those symptoms for which, in the present study, CBT produced the most significant results.

The time factor is less likely as an explanation for the "superiority" of CBT over NCBT because the latter treatment is as effective as the longer CT and BT groups in some variables and also because the relative superiority of CBT is in only a small number of variables, rather than being superior in all aspects of bulimia.

5.8 SUMMARY

When launching the first comprehensive treatment manual for bulimia in 1985, Fairburn noted the lack of carefully controlled comparative treatment studies, particularly over long term follow-up. Since then, there have been many well-controlled studies which have compared Fairburn's manual-based CBT with other therapies, and several studies which have attempted to compare relative effectiveness

of different parts of CBT (the so-called “dismantling studies”). These have been discussed in Chapter Three.

The dismantling studies (Cooper and Steere, 1995; Kirkley et al., 1985; Thackwray et al., 1993; Wolf and Crowther, 1992) have indicated that both cognitive and behavioural elements need to be retained in treatment if it is to be effective for bulimia. The results of Study Two agreed with these earlier findings, where it was found that full CBT produced the most significant reductions in bulimic symptoms, compared with either a CT or BT group. As CT was as effective as CBT in reducing some symptoms it was hypothesised that only those behavioural instructions relating to the “superiority” of CBT over CT needed to be retained in the CBT package. Examination of all treatment protocols suggested that stimulus control instructions may have been redundant to effective therapy.

Thus the aim of the present study was to see if a new form of CBT, without stimulus control instructions, could be as effective as full CBT in reducing bulimic behaviours and associated psychopathology. The results indicated that initially, NCBT was not as effective as full CBT in reducing frequency of bingeing, depression and a number of bulimic concerns, as measured by the EDE. However, at various follow-up times, there were no significant differences between NCBT and Fairburn’s CBT.

The clinical implications of the above results are that, firstly, it is possible to produce significant reductions in the symptoms of bulimia nervosa by the application of relatively brief group therapy (10 therapy hours compared to approximately 20 hours in Fairburn’s original individual CBT). Secondly, for maximum treatment effectiveness, behavioural instructions relating to stimulus control must be retained. Thirdly, giving bn patients a set of instructions designed to help them deal with food-related situations (such as place of eating, “cues” to eating, etc) is crucial to helping

them gain a sense of control over their eating. Therefore they will be not reliant on having strict rules about the type and quantity of food they eat, and less likely to binge when they come into contact with these cues.

These findings have a theoretical implication, in that they suggest the importance of the issue of behaviours associated with eating, rather than the mere act of eating or overeating. They suggest that successful resolution of bulimia nervosa depends on helping these patients gain control over situations in which eating or bingeing occur, rather than relying on having a number of rules about eating (eg having a pre-set calorie limit per day, as typically occurs in diets).

It should be noted that NCBT was five weeks in duration compared with CBT's seven weeks, and perhaps the extra therapy time may in itself have made a difference, although it is hard to know how this would make a difference as NCBT (although shorter) was as effective as CT and BT.

CHAPTER 6

6.1 INTRODUCTION.

Bulimia nervosa was first identified by Russell in 1979. He saw it as a sub-type of anorexia nervosa, which itself had been identified by Gull in 1888.

The key features of bulimia nervosa that Russell identified were:

- Powerful and intractable urges to overeat.
- Avoidance of the “fattening” effects of food by vomiting or purging.
- A morbid fear of becoming fat.

Since Russell’s initial description of 30 bulimic patients in 1979, research into the main features of the disorder has confirmed and elaborated upon his original description. This research has not only focussed on the typical bulimic behaviours of bingeing and purging, (Abraham and Beumont, 1982; Fairburn, 1981; Mitchell et al., 1981), but has also elaborated on the typical psychological features of bulimia nervosa, such as the preoccupation with weight and shape (Cooper and Fairburn, 1987; Fairburn and Cooper, 1984) and preoccupation with food (Casper et al., 1980; Huon and Brown, 1984; Mitchell et al., 1981).

The importance of both behavioural and cognitive elements of bulimia nervosa are indicated in the most recent diagnostic criteria (DSM-IV, APA, 1994), which are:

A. Recurrent episodes of binge eating. An episode of binge eating is characterised by both of the following:

(1) eating, in a discrete period of time (eg. within a 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances,

2) a sense of lack of control over eating during the episode (eg. a feeling that one cannot stop eating or control what or how much one is eating).

- B. Recurrent inappropriate compensatory behaviour in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting; or excessive exercise.
- C. The binge eating and inappropriate compensatory behaviours both occur, on average, at least twice a week for 3 months.
- D. Self-evaluation is unduly influenced by body shape and weight (pp. 252-253).

Thus, as both Russell noted, and the DSM-IV criteria recognise, the syndrome of bulimia nervosa is associated not only with bingeing and purging behaviours, but also with characteristic cognitions regarding the importance of weight and shape. These include preoccupation with weight and shape and the belief that one's weight and shape are of supreme importance and must be kept under strict control. These have been variously described as a "morbid fear of fatness" (Russell, 1979), a "pursuit of thinness" (Bruch, 1973) or a "weight phobia" (Crisp, 1967).

The prevalence of the disorder has also been extensively researched, with estimated rates varying between less than 1% (Schotte and Stunkard, 1987) and 19% (Halmi et al., 1981). As Stein (1991) pointed out, this large variation in prevalence was due, in part, to early differences in criteria used to diagnose bulimia nervosa. That is the use of broad vs restrictive diagnostic criteria; the use of interviews vs questionnaires to assess presence of the disorder; or purging as a required criterion; and the use of differing diagnostic criteria in the USA and UK. This has been rectified, since 1994, by the widespread usage of DSM-IV criteria, which specify a minimum frequency of bingeing and purging behaviours. Bulimia nervosa is more likely to affect women than men (Halmi et al., 1981; King, 1986, Lachenmyer and Muni-Brander, 1988; Leichner et al., 1986.) The "typical bulimic" (Herzog et al., 1991) is between 14 and

40 years, and the average age of onset is between 15 and 18 years (Ben Tovim, 1988; Crowther et al., 1985; Kagan and Squires, 1983; Pope et al., 1984; Pyle et al., 1981).

Bulimia nervosa is a significant mental health problem in the Australian community with approximately 5.6% of school and university students seeking help for an eating disorder at some time (Abraham et al., 1983) and much higher percentages reporting frequent dieting, bingeing and preoccupation with weight and shape (Huon, 1994). Thus substantial numbers of young women in the Australian population would be experiencing, at any one time, some degree of disordered eating, if not anorexia or bulimia nervosa.

There has also been much research interest in the circumstances of the disorder, with many theories as to its causation. Chief areas of investigation have been: familial factors such as family dynamics or abuse experiences; the link between bulimia nervosa and other psychiatric disorders, such as depression and anxiety; or as a reaction to internal or interpersonal stress; as a reaction to a range of psychosocial factors; or as a result of dysfunctional cognitions about weight and shape. As yet, “causes” of bulimia nervosa are still unclear. However, most researchers in the field would agree that it appears to be multi-determined and that psychosocial factors, such as the increasing preference for slimness in Western society, play a key role in the development and maintenance of the disorder. Psychosocial theories are supported by research which indicates a higher prevalence of eating disorders among Caucasians compared with other races (Nasser, 1986; Nevo, 1985); in women compared to men (Hawkins, 1983); and in occupations which emphasise slimness (Garner et al., 1984). Also noteworthy is the fact that eating disorders occur in the context of dieting, which

research has indicated is extremely common among young women in Western society (Abraham et al., 1983; Fairburn and Cooper, 1982; Huon, 1994; Moore, 1988). A number of studies have found that the development of bulimia nervosa was immediately preceded by dieting (Brownell, 1991; Cooper and Fairburn 1983; Garfinkel et al., 1980; Green et al., 1990). Patton (1988) suggested that dieting should be regarded as an aetiological factor rather than just a symptom of bulimia nervosa. Polivy and Herman (1985) went further, demonstrating a case for a causative link between dieting and bingeing based on both physiological and cognitive control methods, saying that “dieting causes bingeing by the adoption of a cognitively regulated eating style” (1985, p.193). Research findings of the link between dieting behaviours and characteristic cognitions and bulimia nervosa have led to the formulation of a cognitive theory about the genesis and maintenance of the disorder (Fairburn, 1985; Garner et al., 1985).

The cognitive model of bulimia nervosa is based on Beck et al.’s (1979) cognitive model of depression. This states that experience leads people to form assumptions or schemata about themselves and the world, which are subsequently used to organise perception and to govern and evaluate behaviour. This skill is necessary to normal functioning, but in some cases, assumptions are rigid, extreme, resistant to change and hence “dysfunctional” (Beck et al., 1979). Such assumptions concern, for example, what people need in order to be happy, (eg. “If someone thinks badly of me, I cannot be happy”) and what they must do in order to consider themselves worthwhile (eg. “I must do well at everything I do”). Dysfunctional assumptions alone do not account for the development of depression. Problems arise when critical incidents occur which coincide with the person’s own set of beliefs. Thus, the belief that personal worth

depends entirely on success could lead to depression after an experience of failure. Once activated, dysfunctional assumptions result in negative automatic thoughts (negative in that they are associated with unpleasant emotions and automatic in that they come unbidden into consciousness). These thoughts may be interpretations of current experiences, predictions about future events, or recollections of past events. They, in turn, lead to a range of behavioural, cognitive and emotional symptoms, which in turn lead to further negative thoughts, thus establishing a “vicious circle” of negative thoughts and emotions.

Particular cognitive errors that Beck et al (1979) noted are:

- Arbitrary reference, ie. drawing a specific conclusion without evidence to support that conclusion.
- Selective abstraction, which consists of focussing on a detail taken out of context.
- Overgeneralisation, ie. drawing a general rule or conclusion on the basis of a limited number of incidents.
- Magnification or minimisation, described as an error in evaluating the significance of an event.
- Personalisation, whereby a person relates external events to himself without supportive evidence.
- Absolutistic, dichotomous thinking (“all or nothing” thinking), described as the tendency to place all experiences in one of two opposite categories, ie. good or bad.

The cognitive approach to the treatment of depression has been extensively studied and results indicate that it is effective in both the short and long term in reducing the symptoms of depression (Evans et al., 1992; Hollon et al., 1992). It has since been successfully applied to a number of other psychological problems, including panic

and anxiety disorders (Barlow et al., 1984); obsessive compulsive disorder (Salkovskis and Kirk (1996); somatic problems (Salkovskis, 1996); PTSD (Foa et al., 1989) and bulimia nervosa (Fairburn, 1981, 1985, Fairburn and Cooper, 1996).

Fairburn enunciated the cognitive model of bulimia nervosa in the following way. One of the significant features of bulimia nervosa is the prominence of characteristic extreme concerns (or overvalued ideas) about shape and weight. Bulimic patients judge their self-worth almost exclusively in terms of their shape and weight. “As a result, they are preoccupied with thoughts about their shape and weight, they assiduously avoid weight gain or fatness, and many strive to be thin.” (Fairburn and Cooper, 1996, p.277). Similar to the examples cited above for depression, typical dysfunctional thoughts exhibited by bulimics would be “I must be thin, to be attractive, successful or happy” or “Self-indulgence is bad since it is a sign of weakness”. The cognitive view of bulimia nervosa is that most features of the disorder, including the bingeing and purging, are secondary to these patients’ overvalued ideas about their weight and shape. These overvalued ideas, in turn, lead to reasoning errors similar to those that occur in depression.

Cognitive theory states that overvalued ideas about weight and shape and unrealistic ideas about what should and should not be eaten are often driven by underlying doubts about self-worth and attractiveness to others and thus play a major role in both the aetiology and maintenance of bulimia nervosa (Fairburn, 1981).

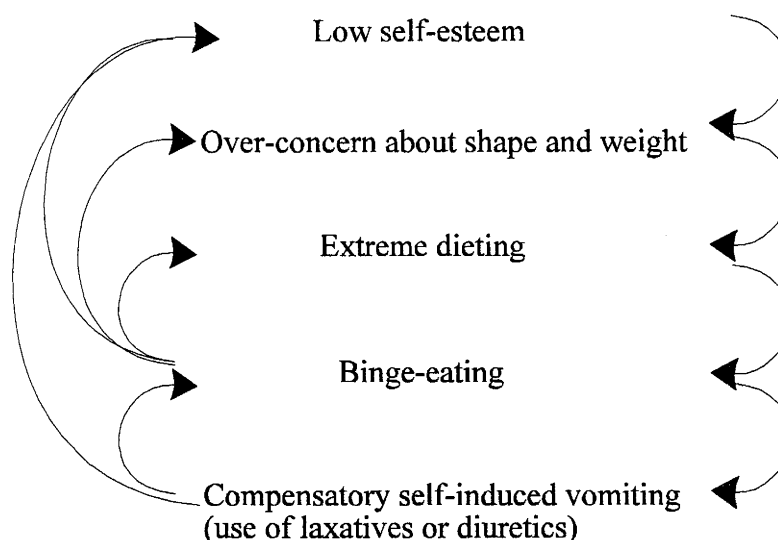


Fig. 6.1 The cognitive view of the maintenance of bulimia nervosa
(Taken from Fairburn and Cooper, 1996, p.283)

Therefore, while research has indicated a “normative discontent with body weight and shape” (Striegel-Moore et al., 1986, p.246) the cognitive model would predict that young women who are most likely to develop an eating disorder have overvalued ideas about the importance of weight and shape in their lives. This conceptualisation is supported by research which indicates that those who develop bulimia nervosa have the greatest discrepancies between their actual and preferred weight and shape and diet more frequently (Huon, 1994), feel their eating behaviours are out of control (Crowther et al., 1985), are more preoccupied with their weight and shape than non-bulimics (Killen et al., 1994) and believe that men prefer thinner body shapes (Fallon and Rozin, 1985). Thus the first study was conducted to investigate the significance of cognitions in the development of an eating disorder in a community-based sample.

6.2 STUDY 1

This study was undertaken to examine the dietary practices and beliefs of young women in an age group most likely to develop bulimia nervosa; to assess the frequency of possible eating disorder in this group; and to see if there is a correlation

between diagnosis of a possible eating disorder and frequency and severity of dieting, degree of dissatisfaction with weight and shape (body image distortion) and overvalued ideas about the importance of weight and shape in their lives.

A sample of 399 females completed a questionnaire which provided information on weight (both actual and ideal), nutritional status (indicated by Body Mass Index), dieting behaviours, cognitions and values related to weight and shape. To screen for possible bulimia nervosa, the Eating Disorder Inventory (EDI), (Garner et al, 1983) was used. This particular screening instrument was used because it measures not only disturbed behaviours (the Bulimia scale) but also disturbed cognitions (the Drive for Thinness and Body Dissatisfaction scales) that are specific to bulimia nervosa.

Study 1 found that at all age levels, there was a high degree of dissatisfaction with weight (Table 2.3 and 2.4) and shape (Table 2.5). Other findings were that large numbers of respondents reported trying to lose weight by dieting and, to a lesser extent, exercising or purging (Table 2.6). These behaviours occurred in the context of beliefs that equated slimness with self control and that slimness was socially desirable (Table 2.7). These findings are in accordance with those of previous research (Cooper and Fairburn 1983; Fallon and Rozin, 1985; Moore, 1988; Williamson, et al., 1985), and are important in that they examine behaviours and cognitions which research has indicated (Patton, 1988; Johnson et al., 1984) are related to the development of bulimia nervosa.

Responses to the EDI indicated that, at the time of filling out the questionnaire, between 5.7% and 8.5% of the sample under 24 years of age may have been suffering from an eating disorder, possibly bulimia nervosa. This frequency is greater than the 1.9% quoted by Cooper and Fairburn (1983) who fulfilled strict diagnostic criteria for

bulimia nervosa. The higher frequency obtained in Study 1 was probably because the EDI was designed as a screening device, and a diagnosis of bulimia nervosa would need to be confirmed by a clinical interview. As the questionnaires were completed anonymously, it was not possible to confirm a diagnosis in this way. Thus those respondents “diagnosed” by the EDI could be best described as “showing bulimic tendencies”.

Another aim of Study 1 was to see if there was a link between “diagnosis” and dieting behaviours and beliefs about the importance of weight and shape. This research was suggested by previous studies which have found that dieting almost always predates the onset of bulimia nervosa (Cooper and Fairburn, 1983; Garfinkel et al., 1980) and that bulimics report much more frequent dieting than normals (Johnson et al., 1984) and hold stronger views about the value of slimness (Fallon and Rozin, 1985).

Statistical analyses indicated significant relationships between identification of bulimic tendencies and dissatisfaction with body shape, frequency of dieting and use of “extreme” dieting practices such as purging. Respondents identified as having bulimic tendencies were also significantly more likely to endorse the view that slimness is more valued by men and that fatness is a result of weakness of some kind. This finding indicates that young women identified as having bulimic tendencies also have a set of values and ideas (dysfunctional ideas) about the importance of slimness, which distinguishes them from women without bulimic tendencies.

Thus the first study indicated that among women under 30, there is significant and unrealistic dissatisfaction with weight and shape and widespread use of a range of weight loss techniques. These findings are in keeping with earlier research, such as

Wolf and Crowther (1992) and Moore (1988). While past research and the results of Study 1 indicated that a large percentage of young women express dissatisfaction with their weight and shape, many fewer will develop an eating disorder such as bulimia nervosa. The significant relationship between identification of bulimic tendencies and frequency and severity of dieting behaviours, as well as the espousal of beliefs and attitudes about the importance of controlling weight, lend support to a cognitive model of the development and maintenance of bulimia nervosa. This states that the central psychopathology of bulimia nervosa is the “overvaluation” of slimness and the belief that it is essential for self-esteem that weight and shape must be kept under control. These beliefs lead to dieting, exercise and purging in an effort to maintain control. Fairburn (1985) stated that these beliefs and values drive the dieting and purging behaviours and that bingeing is a secondary response to dietary restraint. Thus, these dysfunctional beliefs are of primary importance in the development and maintenance of bulimia nervosa, and not secondary to the bingeing and purging. Study 1 indicated that those with bulimic tendencies demonstrated an overvaluation of slimness. This overvalued idea of slimness was associated with greater dissatisfaction with shape and weight (even though none of these respondents were actually overweight) and the reported use of more frequent and extreme weight control measures. The result that these particular ideas concerning the value of weight and shape were associated with more frequent and extreme weight control measures indicates the primacy of cognitions in bulimia nervosa.

These findings have implications for the treatment of bulimia nervosa, in terms of the relative importance of tackling cognitive and behavioural issues in treatment. These issues were addressed in two subsequent studies.

6.3 TREATMENT ISSUES

Since the first description of bulimia nervosa by Russell, there has been much research into finding effective and long-lasting treatments for it. A number of treatments have been used and compared with each other. These include medication, (anti-convulsants, anti-depressants and MAO inhibitors), behaviour therapy, nutritional counselling, psychoanalytic psychotherapy and family therapy. Early studies suffered from poor controls, small subject numbers and high attrition rates. Another, and more fundamental fault, was that these treatments, with the possible exception of the behavioural models (Rosen and Leitenberg, 1985), did not link treatment techniques with theory about causation or maintenance of bulimia nervosa, or, focussed only on bingeing and purging behaviours, leading to treatment effects that were short-lived.

In 1981, Fairburn reported on the development of a new individual therapy, based on cognitive and behavioural principles about the development and maintenance of bulimia nervosa, following the principles of cognitive behavioural therapy developed and used by Beck (1976) in the treatment of depression.

Based on the idea that depressed mood is a result of dysfunctional cognitions, cognitive behavioural therapy (or CBT) uses a range of cognitive and behavioural techniques to correct these dysfunctional cognitions. Specifically cognitive techniques are designed;

- To monitor negative automatic thoughts or cognitions.
- To recognise the connections between cognition, affect and behaviour.
- To examine the evidence for and against negative thoughts.
- To substitute more reality-based interpretations for these biased cognitions.

- To learn to identify and alter the dysfunctional beliefs that predispose the person to distort their experiences.

Behavioural techniques are also used not only to change behaviour, but to elicit cognitions associated with specific behaviours, eg a weekly activity schedule, whereby respondents can identify situations and events associated with bingeing and purging.

The CBT treatment for bulimia nervosa first reported on by Fairburn in 1981, and later developed into a manual in 1985, closely follows Beck's model for CBT with depressed patients.

As in depression, cognitive theory states that dysfunctional thoughts and values (specifically related to the importance of weight and shape) are central to the development and maintenance of bulimia nervosa. Therefore, similar techniques to those described above are used to help the bulimic patient challenge her dysfunctional beliefs about weight and shape.

CBT for bulimia nervosa as described by Fairburn (1985) consists of the following elements designed to;

- monitor their behaviour,
- learn about the physical consequences of their behaviour,
- disrupt the bingeing and purging,
- establish a pattern of regular eating, and
- examine the function of bingeing and purging.

(All of the above form the first, mainly behavioural, part of treatment).

- reduce dietary restraint
- identify the circumstances that result in bingeing and to help the patient
 - a. to cope more effectively with such circumstances

- b. to reduce the frequency of their occurrence
- identify and challenge thoughts, beliefs and values that are perpetuating the eating problem,
- help the patient deal with body image misperception and body image disparagement.

As can be seen, the plan for CBT for bulimia nervosa closely follows that of CBT for depression. Both CBT for depression and for bulimia nervosa are based on the coherent model of emotional disorder outlined earlier, rather than simply a collection of techniques with no underlying rationale.

In 1981, Fairburn reported on a study where CBT was used with 11 women diagnosed with bulimia nervosa. They experienced significant reductions in bulimic behaviours and psychopathology, such as preoccupation with weight and shape, and depression. Since then a number of studies have continued to demonstrate the effectiveness of CBT in the treatment of bulimia nervosa. In a survey of treatment studies using CBT, Fairburn et al. (1992) found that the mean percentage rate for reduction in bingeing ranged from 93% to 73%, and for purging between 94% and 77%. In addition, they found significant reductions in the associated psychopathology of bulimia nervosa. As well, CBT has demonstrated good maintenance effects over lengthy periods (in one study, Fairburn et al., 1995, up to five years). CBT has also demonstrated its superiority over other therapies (see Table 3.2).

In spite of the well-known effectiveness of CBT its mechanisms of action are still unclear. There have been a number of studies (the so-called dismantling studies) which together have suggested that while behavioural instructions work in the short-term (Wolf and Crowther, 1992) cognitive restructuring is a vital part of the total

treatment package, particularly in the long-term (Cooper and Steere, 1995; Fairburn et al., 1993; Kirkley et al., 1985; Thackwray et al., 1993).

These findings, that cognitive manipulations work, suggest that disturbed cognitions are at the root of bulimia nervosa. However, it is still unclear if all parts of CBT are necessary for the long-term recovery from bulimia nervosa, or just those parts which address dysfunctional cognitions.

CBT was originally developed as an individual therapy lasting 20 weeks (Fairburn, 1985). However, some of the comparative studies (Freeman et al., 1988; Thackwray et al., 1993; Wilfley et al., 1993) demonstrated that CBT still results in significant clinical improvements when abbreviated and delivered in a group format.

6.4 STUDY 2

Study 2 had two aims. One was to see if group CBT could be as effective as individual CBT in reducing behavioural and psychological symptoms of bulimia nervosa. If this were found to be the case, it would have important implications for health care costs. Another aim was to identify key components of CBT that made a significant difference to treatment effectiveness. Starting with the manual for CBT developed by Fairburn in 1985, and subsequently used in many comparative studies, CBT was broken down into two major components. The first was a primarily behavioural component (BT) which focussed on the development of a regular eating habits; stimulus control issues, eg eating in one place, off a plate etc; alternative behaviours, such as doing something incompatible with eating, and ways of controlling the act of eating, such as slowing down the rate of eating. The other

component was primarily cognitive (CT) consisting of identification and change of dysfunctional thoughts related to weight and shape, and of identification of the “function” of the bulimic behaviours. While the two dismantled groups were labelled behavioural or cognitive groups, the author is aware that it is, practically speaking, impossible to completely separate cognitive and behavioural elements in therapy. The major difference between the two dismantled groups was that the BT group (N=19) focussed on ways of changing bulimic behaviours, while the CT group (N=17) focussed on ways of changing thoughts that resulted in bulimic behaviours. Both of these groups were compared with another group that received full CBT (N=18) and all were compared with a wait list control (N=20).

Participants were women diagnosed with bulimia nervosa and they each received a total of 14 hours of group therapy. Prior to commencing group therapy each participant completed the following assessments: the Eating Disorders Examination (Cooper and Fairburn, 1987); the Eating Disorders Inventory (Garner et al., 1983); the Beck Depression Inventory (Beck et al., 1961); and the Profile of Mood States (McNair et al., 1971). They were re-assessed with the same measures after treatment, and at four, eight and 12 months follow up in order to assess both short and long-term effects of treatment, not only on bulimic behaviours, but on associated psychopathology, such as depression and preoccupation with food, weight and shape. All assessments and therapy were conducted by the author.

Five points are important to note regarding the main features of Study 2.

1. Unlike many of the early treatment studies, participants in the present study were not recruited by advertisement, but rather, were referred to the author either by medical practitioners or other therapists. These people were screened for other problems and therefore those who participated were most likely to be bulimic and

not suffering from other problems. Also the sample was similar to that reported in studies by Fairburn (1991) in terms of age, severity and duration of illness (see also Table 4.2).

2. All participants were followed for a considerable length of time (one year) and the follow-up period was closed (ie. they received no other treatment in the interim. It was possible to check this because they were followed up twice during the year). This duration of follow-up was chosen to enable comparison with the Fairburn group of studies, and also because, as Fairburn (1985) has stated "Treatment effects which are short lived are of limited value." (p.469).
3. No participants dropped out of active treatment. This is particularly important because many studies using group studies have been marred by high drop-out rates. In a review of cognitive behavioural treatments for bulimia nervosa, Garner et al. (1987) noted that the drop-out rate was between 15% and 35% with a median rate of 23%. The present study (and Study 3, which also had no treatment drop-outs) thus compare well with other studies in this respect.
4. The use of treatment manuals so that each component of treatment could be independently verified. In this study each session of all three groups was tape-recorded and a sample of each checked for adherence to cognitive and behavioural techniques.
5. Standardised assessment techniques were used at each assessment point so that results could be compared with those of other studies.

Results indicated that the brief, group therapy could be as effective as individual therapy, as evidenced by the significant reductions in behavioural and psychological symptoms after treatment, and the maintenance of these improvements during follow-

up. There was an 88% reduction in binge rate and an 83% reduction in vomiting rate after group CBT (Table 4.5). These results are better than results of some studies of group treatment (eg Wolf and Crowther, 1992, who obtained a 44% reduction in binge rate and a 34% reduction in vomiting after eight weeks of group treatment). They also compare well with results obtained by Fairburn et al. (1986) who obtained an 87% reduction in binge and a 71% reduction in vomiting rates after 18 weeks of individual CBT.

Statistical analyses of results indicated that all three treatment groups experienced significant reductions in bulimic behaviours and associated psychopathology, such as depression, tension, and body dissatisfaction. However, CBT produced better results at all stages than the CT or BT groups alone, with 72% no longer meeting DSMIII-R criteria for bulimia nervosa at the end of treatment compared with 41% of CT and 52% of BT. However, the CT group maintained its improvement better over follow-up than the BT group; at 12 months, 72% of the CBT no longer met diagnostic criteria for bulimia nervosa, compared with 58% of the CT group and 47% of the BT group. These results are in agreement with those obtained earlier (Fairburn et al., 1986, 1991, 1993, 1995; Thackwray et al., 1993; Wolf and Crowther, 1992) who found that patients who received CBT were less likely to relapse during follow-up than patients who received BT only.

Another finding of this study was that in most areas, the CT group experienced the same reduction in bingeing and purging, depression, and other psychological symptoms, both short and long term, as the CBT group. This indicated that it is essential to address cognitive issues in therapy for bulimia nervosa and provided strong supportive evidence for the cognitive view of the maintenance of bulimia

nervosa, in that it indicated that change in dysfunctional cognitions relating to weight and shape was accompanied by change in bulimic behaviours. As mentioned earlier, the rationale of the CBT approach to bulimia nervosa is the centrality of beliefs and values about weight and shape, with the extension that these beliefs drive the bulimic behaviours. Therefore, to effect a lasting recovery, it is essential to address these cognitions. In discussing mechanisms of action of CBT, Wilson and Fairburn (1993) suggested that abnormal beliefs about weight and shape drive dieting and hence bingeing. They noted that those bulimic patients most prone to relapse were those who retained the most disturbed thoughts and beliefs about the importance of weight and shape, as measured by the EDE after treatment. They went on to raise the question whether change in beliefs about the importance of weight and shape mediates improvement in binge eating and purging or is simply a correlate or consequence of behaviour change. While Study 2 did not investigate the link between beliefs of those patients who were successful in treatment compared with those who were not, the fact that patients in the CBT and CT groups did not differ from each other in most variables suggests that cognitive change mediates improvement in bulimic symptomatology. As well as indicating the central role of cognitive change in the treatment of bulimia nervosa, these results also have implications for the importance of cognitions in the genesis of the disorder. Cognitive theories assign thoughts about eating, weight and shape a causal role in the aetiology of bulimia nervosa. The result of Study 2, that the CT group was as effective as the CBT group in many areas, provides support for a cognitive disturbance model.

However, in a small number of variables full CBT was superior to CT. These were frequency and duration of bingeing, and both a feeling of, and anxiety about, loss of

control over eating. This result indicated that behavioural instruction relating to the above variables needed to be retained in treatment, but that behavioural elements which did not relate to these variables could be excluded from treatment without adverse effects. The elements that were contained in CBT but not CT were primarily behavioural instructions designed to help the patient regain control over eating. These include: advice about eating behaviours; such as regular mealtimes and slowing the rate of eating; use of delay or distraction to prevent bingeing and stimulus control instructions, such as eating in one place, which have proved effective in the treatment of obesity. The treatment protocols of the CBT and CT groups were carefully compared and each variable whereby CBT resulted in a significantly greater change than CT was matched intuitively with a behavioural instruction that was present in the CBT manual but not in the CT manual. In this process of comparison, behavioural instructions relating to stimulus control did not appear to relate to any variable in which CBT differed significantly from CT. It was then hypothesised that stimulus control instructions may have been redundant to treatment. To investigate if, in fact, this were the case, a further study was undertaken.

6.5 STUDY 3.

This study compared a new form of CBT, without stimulus control instructions, with the three previous treatment groups. In this study 19 women diagnosed with bulimia nervosa participated in a new form of CBT (NCBT) without stimulus control instructions. As in the previous study, all therapy sessions were conducted in a group format and were of 10 hours total duration. This was four hours (or two sessions) less than the previous groups, because of the removal of stimulus control instructions. Participants completed the same forms of assessment as those in the second study and at the same assessment points.

Statistical analysis of the results indicated that a relatively brief (ie. five weeks) group treatment could reduce frequencies of bingeing and purging. Table 5.2 indicated that patients who received traditional CBT were least likely to meet DSMIII-R criteria for bulimia nervosa both after treatment and at 12 months' follow-up. In this respect, NCBT was not as successful as CBT, but was as successful as CT and was more successful than BT.

As in Study 2 the above results indicate that a short group form of CBT (in this case five weeks) can be effective in reducing a number of symptoms of bulimia, particularly psychological symptoms as measured by the EDE and EDI. These results support findings of similar studies where CBT was found to produce greater and longer lasting reductions in bulimic symptomatology than BT (Wolf and Crowther, 1992; Thackwray et al., 1993). The present results extend those obtained in Study 2, and earlier research mentioned above, indicating that to be successful, treatment for bulimia needs to incorporate both cognitive and behavioural elements. These findings reinforce Fairburn's assertion (1985 p.161) that both cognitive and behavioural elements need to be retained in therapy for it to be effective.

However, in no variable did NCBT result in significantly greater symptom reduction than any other group from Study 2. In fact, NCBT was as effective as traditional CBT in one variable only, reduction of frequency of vomiting during treatment.

Participants in traditional CBT experienced significantly greater reductions than any other group in: frequency of bingeing; having strict dietary rules; subjective loss of control; duration of a binge; fullness after a binge; avoidance of eating in public; the importance of, and dissatisfaction with, weight and shape; and depression, as

measured by both the BDI and POMS. These differential effects occurred after treatment, and did not persist during follow-up. There are a number of possible explanations for these findings.

Firstly, it is probable that stimulus control instructions do need to be retained in the CBT package for it to be maximally effective and that stimulus control instructions relate in some way to the variables listed above. The theoretical implication of this finding is that instructions on handling food-related situations are necessary for bulimics to lessen their dependence on having strict rules about eating as a means of having control over eating. This was suggested by the fact that CBT participants had significantly lower scores in dietary rules, and felt more in control of their eating which is then reflected in a significantly lower binge frequency at the end of treatment. This finding indicates the importance of addressing the relationship between stimulus control and dietary restraint and supports Fairburn's assertion that bingeing is a secondary response to extreme dietary restraint (1985, p.161).

Secondly, as bulimia nervosa is a complex disorder, involving not only the behaviours of bingeing and purging, but a range of characteristic beliefs and emotions, the present findings suggest that a multi-faceted treatment is more likely to be successful. CBT for bulimia nervosa, as developed by Fairburn consists of a number of elements, such as instructions relating to alternative behaviours, use of distraction and delay to control bingeing, techniques to control the act of eating, identifying and changing dysfunctional thoughts relating to weight and shape, as well as stimulus control instructions. It could simply be that it is not possible to meaningfully remove any one element, such as stimulus control instructions, from the whole package, ie. that all aspects of CBT are interdependent, and that to remove one or two elements

compromises treatment effectiveness. Supportive evidence for this interpretation is that dismantling studies completed to date (Cooper and Steere, 1985; Kirkley et al., 1985; Thackwray et al., 1993) have found that parts of CBT were less effective than the whole “package”.

Another possible explanation for the results of the present study is perhaps that the time variable had a crucial effect on the results. As mentioned earlier, NCBT was of 10 hours’ duration, while all other treatment groups lasted for 14 hours. Because the NCBT and CBT groups differed systematically in two variables, ie. content of treatment and amount of time spent in therapy, it may be that the superior results obtained by the CBT group over the NCBT group could be explained by the longer time in therapy, rather than the specific therapeutic techniques used in the CBT group (ie the inclusion of stimulus control instructions). Research into process factors (such as time spent in therapy) indicate that “the absolute amount of therapeutic contact” can have a significant effect on treatment outcome (Orlinsky and Howard, 1978, p.283). It could be that five group sessions are not enough for bulimic patients to deal with complexities of their disorder. This question could only be answered by extending the duration of NCBT to see if it becomes as effective as CBT in reducing those symptoms which, in the present study, CBT produced the most significant results. The relationship between duration of therapy and symptom reduction would appear to be complex, because of the findings that there were no significant differences between NCBT and CT or BT after treatment, although the latter two groups were of 14 hours’ duration, compared to 10 hours’ duration of the NCBT group, and no difference between NCBT and CBT during follow-up.

6.6 CONCLUSIONS AND FUTURE DIRECTIONS

Bulimia nervosa is a significant mental health problem with one study (Abraham et al., 1983) reporting 5.6% of school and university students seeking treatment for an eating disorder at some time.

To treat the problem effectively, it is vital to understand what factors are significant in its genesis, as well as to develop effective treatments for it.

Cognitive theory about the development and maintenance of bulimia nervosa provides a coherent explanation for the development of the disorder, which has clear implications for its treatment. Cognitive theory states that overvalued ideas about body weight and shape and unrealistic ideas about what should and should not be eaten, often driven by underlying doubts about self-worth and attractiveness to others, play a major role in the development and maintenance of bulimia nervosa. According to this view, these beliefs lead to excessive dietary restraint, which in turn increases risk for losing control over eating and engaging in episodes of bingeing, which is followed by purging. Thus, cognitive behavioural therapy addresses both the disturbed behaviours of bingeing and purging and the dysfunctional cognitions which cognitive theory states underlies the disturbed behaviours.

Study 1 surveyed the dietary behaviours and beliefs of a sample of Australian women in an age group most likely to develop an eating disorder such as bulimia nervosa. Results indicated that while there was widespread body dissatisfaction, a much smaller percentage (between 5.7% and 8.5%) could be diagnosed as having bulimic

tendencies. As well as being characterised by more frequent and extreme dieting, they demonstrated extreme attitudes and beliefs about the value of slimness. Therefore the results of this study support cognitive theory that strongly-held beliefs and values about the importance of slimness are likely to lead to bulimic behaviours.

Studies 2 and 3 were concerned with treatment issues, particularly the relative importance of treating disordered behaviours versus cognitions in bulimia nervosa.

Cognitive theory predicts that lasting recovery from bulimia nervosa is only possible if the underlying dysfunctional cognitions about the importance of weight and shape are addressed in treatment. The results of Study 2 indicated that initially, all three treatment groups significantly reduced bingeing and purging. However, during the one year follow-up, the BT group's improvement was less well-maintained than either the CT or CBT group. The finding that CT was almost as effective as CBT in changing not only cognitions but behaviours as well supports the cognitive position in that working on dysfunctional beliefs results in changed behaviours and therefore indicates that it is the dysfunctional beliefs that generate the dysfunctional behaviours.

Study 3 indicated that some behavioural elements, particularly behavioural instructions relating to stimulus control, need to be retained in treatment for maximum effectiveness. It was suggested that stimulus control instructions operate by enabling bulimics to reduce dietary restraint, in turn reducing bingeing and purging behaviours. This finding is also consistent with cognitive theory, in that overvalued ideas about weight and shape drive preoccupation with weight and shape and avoidance of weight gain, which leads to extreme dietary restraint. This restraint is usually in the form of a

rigid set of rules about what can and cannot be eaten, and when these rules are broken, compensatory behaviour, such as purging, occurs. The results of Study 3 indicate that behavioural instructions relating to the circumstances in which eating occurs, ie. stimulus control instructions, are a crucial link in changing the above sequence of behaviours, in that they provide the bulimic with an alternative to rigid dietary rules as a way of controlling eating behaviours.

As in the case of depression, the cognitive view of bulimia nervosa states that dysfunctional cognitions are not a symptom of the disorder, but are the root of the disorder. The argument for the development of bulimia nervosa is the same, that dysfunctional thoughts regarding weight and shape and values of thinness drive the disorder. The results obtained in Studies 2 and 3, indicating that therapies which aim to change these dysfunctional thoughts produce behavioural change, in turn lends support to the conceptualisation of these dysfunctional thoughts as being at the root of the disordered behaviour that is bulimia nervosa.

The clinical implications of studies 2 and 3 are:

- Group CBT can be as effective as individual therapy in reducing both behavioural and psychological symptoms of bulimia nervosa, and therapeutic gains can be sustained for at least a year after therapy is completed.
- Producing cognitive change is vital to recovery, particularly in the long term, but some attention needs to be paid to behavioural change, particularly in the early stage of therapy.

The above findings suggest one line of future research, that of matching types of treatment (ie group or individual) to match different severities of bulimia. Relatively brief group treatments, such as those used in Studies 2 and 3 can be used successfully

to reduce bulimic symptomatology in many, but not all bulimics. A start has been made in this area by studies reporting on the development of a “stepped-care” approach, whereby less intensive treatments, such as guided self-help or group treatments are first used, and then more intensive approaches are used when these fail (Fairburn and Carter, 1997).

Study 3 suggested that stimulus control instructions could not be excluded from CBT for bulimia nervosa without compromising treatment effectiveness. Further dismantling studies could investigate if there are other elements of CBT which are redundant to treatment.

While the findings described above indicate the value of cognitive change, issues addressed were restricted to specific beliefs about the self in relation to weight and shape. Future research into cognitive change in bulimia nervosa could examine the relative effectiveness of addressing specific change in such beliefs compared with addressing more generic concerns about perceived self-worth and the nature of interpersonal relationships.

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APPENDIX A. Study 1 Questionnaire incorporating EDI.

A.N.U. DEPARTMENT OF PSYCHOLOGY

QUESTIONNAIRE

This is a questionnaire which examines a variety of attitudes, feelings and behaviours. Some of the items relate to food and eating. Others are about your feelings about yourself. THERE ARE NO RIGHT OR WRONG ANSWERS SO TRY VERY HARD TO BE COMPLETELY HONEST IN YOUR ANSWERS. RESULTS ARE COMPLETELY CONFIDENTIAL.

Age..... Sex..... Marital Status.....

Present Weight.....lbs.....kgms

Present Height.....ft.....cms

Highest Past Weight (excluding pregnancy).....lbs
or.....kgs

How long ago?.....months

How long did you weigh this weight?.....months

Lowest adult weight.....lbs
orkgs

How long ago?.....months

How long did you weigh this weight?.....months

What do you consider your ideal weight?.....lbs
orkgs

Would you say that you have an eating problem?.....YES
.....NO
(circle one)

Age at which eating problems began.....yrs

Age at which weight problems (if any) due to eating problems began.....yrs

Have there been times in the past when you have voluntarily lost significant amounts of weight?.....YES
NO
 (circle one)

If yes, how much did you lose on the last occasion?.....lbs
 or.....kgs

How did it make you look?.....better
worse
no different
 (circle one)

I am now or have been a vegetarian.....YES
NO
 (circle one)

I eat at fairly regular times.....YES
NO
 (circle one)

I try to make each meal a special occasion.....YES
NO
 (circle one)

I put a lot of time and effort into the preparation of my food.....YES
NO
 (circle one)

I count calories.....YES
NO
 (circle one)

I go on lots of diets.....YES
NO
 (circle one)

I think fatness is a sign of lack of willpower.....YES
NO
 (circle one)

I believe that men generally prefer slim women.....YES
NO
 (circle one)

I eat whatever is quickest to prepare.....YES
.....NO
(circle one)

In this part of the questionnaire, please fill in the circle under the column which applies to you.

[illegible]

	Always	Usually	Often	Sometime	Rarely
15. I am open about my feelings.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. I am terrified of gaining weight.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. I trust others.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I feel alone in the world.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. I feel satisfied with the shape of my body.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. I feel generally in control of things in my life.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. I get confused about what emotion I am feeling.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. I would rather be an adult than a child.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. I can communicate with others easily.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. I wish I were someone else.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. I exaggerate or magnify the importance of weight.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. I can clearly identify what emotion I am feeling.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. I feel inadequate.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. I have gone on eating binges where I felt that I could not stop.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. As a child, I tried very hard to avoid disappointing my parents and teachers.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. I have close relationships.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31. I like the shape of my buttocks.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Always	Usually	Often	Sometimes	Rarely	Never
32. I am preoccupied with the desire to be thinner.....	0	0	0	0	0	0
33. I don't know what's going on inside me.....	0	0	0	0	0	0
34. I have trouble expressing my emotions to others.....	0	0	0	0	0	0
35. The demands of adulthood are too great.....	0	0	0	0	0	0
36. I hate being less than best at things.....	0	0	0	0	0	0
37. I feel secure about myself.....	0	0	0	0	0	0
38. I think about bingeing (overeating).....	0	0	0	0	0	0
39. I feel happy that I am not a child anymore.....	0	0	0	0	0	0
40. I get confused as to whether or not I am hungry.....	0	0	0	0	0	0
41. I have a low opinion of myself.....	0	0	0	0	0	0
42. I feel that I can achieve my standards.....	0	0	0	0	0	0
43. My parents have expected excellence of me.....	0	0	0	0	0	0
44. I worry that my feelings will get out of control.....	0	0	0	0	0	0
45. I think that my hips are too big.....	0	0	0	0	0	0
46. I eat moderately in front of others and stuff myself when they're gone.....	0	0	0	0	0	0
47. I feel bloated after eating a normal meal.....	0	0	0	0	0	0
48. I feel that people are happiest when they are children.....	0	0	0	0	0	0

[illegible]

In the next part, there are some questions similar to those asked before. The NEW questions refer to how you feel RIGHT NOW.

Right now, my stomach feels too big.....YES
NO
 (circle one)

Right now, I overeat when I am boredYES
NO
 (circle one)

Right now, I think that my thighs are too large.....YES
NO
 (circle one)

Right now, if I have overeaten, I may try to lose weight by exercise,
 taking laxatives or diuretics, or by vomiting.....YES
NO
 (circle one)

Right now, I am pretty happy with the shape of my body.....YES
NO
 (circle one)

Right now, I will allow myself to eat only when I have done something to
 earn it.....YES
NO
 (circle one)

Right now, I like the shape of my buttocks.....YES
NO
 (circle one)

Right now, I feel tempted to eat when I feel depressed.....YES
NO
 (circle one)

Right now, my hips are too big.....YES
NO
 (circle one)

(circle one)

(circle one)

```
personal relationships....(
    feelings.....(
    marriage.....(
    financial state.....(
    living conditions.....(
```

totally
(circle one)

There will be no fee for any counselling received.

APPENDIX B. Diaries for CBT and CT groups.

HOW TO COMPLETE THE DIARY

The purpose of monitoring yourself is to provide a detailed picture of your eating habits. It is central to the treatment process. At first, writing down everything you eat may seem inconvenient and irritating, but soon it becomes second nature and of obvious value.

A separate sheet (or sheets) should be used each day, with the date and day of the week noted at the top.

Column 1. *is for noting the time at which the food or liquid was consumed.*

Column 2. *is for recording all the food and liquid you consume during the day. Each item should be written down as soon as possible after its consumption. Recalling what you ate or drank some hours earlier is not sufficient. Obviously, if you are to record your food intake in this way, you will have to carry your monitoring sheets with you. Calories should provide a simple description of what you ate or drank. Meals should be identified using a bracket. A meal may be defined as "a discrete episode of eating that was controlled, organised, and eaten in a normal fashion." Mere snacks should not be bracketed.*

Column 3 *should detail where the food or liquid was consumed. If this was in your home, the room should be specified.*

Column 4 *asterisks should be placed in this column adjacent to eating that you felt was excessive. It is essential to record all the food you eat during "binges."*

Column 5 *is for recording when you vomit or take laxatives or diuretics (water tablets).*

Column 6 *should be used as a diary to record events that influenced your eating: for example, if you feel that an argument precipitated a "binge," you should note that down. You may wish to record other important events, even if they had no effect on your eating. You may also like to note down any strong feelings - for example, feelings of depression, anxiety, or loneliness, or feeling "fat."*

Column 7 *should also be used to record your weight each time you weigh yourself.*

Every treatment interview will include a review of your latest monitoring sheets. You must therefore remember to bring them with you.

NAME:

DATE:

DAY:

TIME	FOOD & LIQUID CONSUMED	PLACE	WITH WHOM	B	V/P	CONTEXT OF OVEREATING (EVENTS BEFOREHAND, FEELINGS, THOUGHTS)	FEELINGS, THOUGHTS, AFTER EATING

APPENDIX C. Diary for BT group.

HOW TO USE THE DIARY

The purpose of monitoring yourself is to provide a detailed picture of your eating habits. It is central to the treatment process. At first, writing down everything you eat may seem inconvenient and irritating, but soon it becomes second nature and of obvious value.

A separate sheet (or sheets) should be used each day, with the date and day of the week noted at the top.

Column 1. Is for noting the time at which the food or liquid was consumed.

Column 2. Is for recording all the food and liquid you consume during the day. Each item should be written down as soon as possible after its consumption. Recalling what you ate or drank some hours earlier is not sufficient. Obviously, if you are to record your food intake in this way, you will have to carry your monitoring sheets with you. Calories should provide a simple description of what you ate or drank. Meals should be identified using a bracket. A meal may be defined as "a discrete episode of eating that was controlled, organised, and eaten in a normal fashion." Mere snacks should not be bracketed.

Column 3. Should detail where the food or liquid was consumed. If this was in your home, the room should be specified.

Column 4. With whom you ate or drank.

Column 5. Asterisks should be placed in this column adjacent to eating that you felt was excessive. It is essential to record all the food you eat during "binges".

Column 6. Is for recording when you vomit or take laxatives or diuretics (water tablets).

Column 7 & 8. Should be used to note down "feelings" of "fatness" and whether you are hungry or not.

Column 7. Should also be used to record your weight each time you weigh yourself.

Every treatment interview will include a review of your latest monitoring sheets. You must therefore remember to bring them with you.

NAME:		DATE:		DAY:	
-------	--	-------	--	------	--

TIME	FOOD & LIQUID CONSUMED	PLACE	WITH WHOM	BINGE	V/P	HOW DID YOU FEEL BEFORE? HUNGRY?	HOW DID YOU FEEL AFTER?

APPENDIX D. BT manual and maintenance sheet.

SESSION 1:

ORIENTATION OF PATIENTS:

Patients are provided with the following information;

1.TREATMENT STRUCTURE. Treatment lasts seven weeks, during which there will be seven group meetings of approximately two hours each.

2.TREATMENT CONTENT. The aim is to help each participant regain control over eating and specific advice is given on how this can be achieved.

3.TREATMENT STYLE & NEED FOR COMMITMENT. Patients are told that treatment requires an intensive commitment, and it should be given priority in their lives. Regular homework assignments are set and they should do their utmost to complete these tasks. The more effort that is put into treatment, the greater are the rewards. The therapist will offer information, advice and encouragement, but it is up to each person to make the most of treatment.

4.MONITORING. Each patient is taught how to monitor her eating. She should be given written instructions on monitoring (see relevant diary, Appendix 3). The rationale for monitoring should be explained: namely, it helps both patient and therapist analyse the patient's eating habits and the situations in which problem eating occurs. It is not uncommon for patients to be reluctant to monitor themselves, especially if they are ashamed of their eating habits. As a matter of routine, the therapist should anticipate this reaction by assuring each patient that there is no need to be ashamed of her behaviour and that recording what actually happens is the first stage in confronting the eating problem and overcoming it.

5.WEEKLY WEIGHING. Each patient is asked to weigh herself once a week on a morning of her choice. In practice, a weekday morning works out best. There is often some resistance to this suggestion. The great majority of patients are overconcerned with their weight and this concern is evident in their weighing habits. There is a tendency for them either to check their weight daily or oftener, or to avoid weighing altogether while nevertheless remaining highly aware of their shape. Both groups find it difficult to adjust to weekly weighing. Patients who have avoided weighing should be forewarned that they may experience a short-lived increase in their concern with their weight. Weighing at weekly intervals is an essential element of treatment. Since patients' eating habits change markedly during treatment, it is important that they monitor their weight.

SESSION 2:

REVIEW OF DIARIES. Each sheet is discussed in depth, with the therapist guiding patients through the day's events. The aim is to get a full understanding of each patient's current eating habits. Episodes of "excessive eating" (signified by asterisks in the fifth column of the diary) should be discussed in particular detail. It is important to make sure that monitoring is not retrospective, instead, the patient should write down what she eats just before or immediately after consumption. Accurate monitoring should be praised especially where the patient finds it embarrassing.

PROVIDE INFORMATION. Patients are told what their weight represents as a percentage of the average weight for their age and height (ie. standard weight). They

are advised against choosing an exact desired weight, since this would fail to take account of day to day weight fluctuations. Instead, they should accept a weight range of approx. 3kg (7lb) in magnitude. This weight range should not extend below 85% of their standard weight, since at such a weight they would be likely to experience the physiological and psychological sequelae of starvation, which may tend to worsen the eating problem.

Patients should also be advised against a weight range that necessitates anything more than moderate dietary restriction, as this restraint is likely to encourage over-eating.

Generally, patients will be advised not to decide on a weight range until they have some degree of control over eating.

Discuss the arbitrary nature of weight goals. These tend to be located just under a threshold figure, eg. 100lbs, 50 kgs, etc.

ADVICE ABOUT EATING: The prescription of a pattern of regular eating. Patients are asked to restrict their eating to three or four planned meals per day. Some snacks can also be built in. There should be no more than three hours between meals and they should always know when they are due to eat next. This eating pattern should take precedence over other activities, irrespective of her circumstances or appetite, patients should not skip any meals or snacks. Conversely, however, between these times she should do her utmost to refrain from eating. This pattern of regular eating has the effect of displacing the alternating over-eating and dietary restriction that characterise these patients' eating habits. Obviously the pattern must be tailored to suit their daily commitments and weekends. If the day is unpredictable, each one should plan ahead as far as possible and decide upon a time when she can make further plans for the rest of the day. Patients whose eating habits are grossly disturbed should introduce this eating plan in gradual stages.

First they should concentrate on the part of the day when their eating is least disturbed, which is usually the mornings, then they should gradually extend the eating plan until it encompasses the entire day. Some patients are reluctant to eat meals or snacks since they think this will result in weight gain. They can be reassured that the converse usually occurs, since the introduction of this pattern of eating will decrease their frequency of binge eating and thereby significantly reduce their overall caloric intake. Despite such reassurances, it is common for patients to select meals and snacks that are low in calories. There need be no objection to this tendency, at this stage of treatment the emphasis should be primarily on establishing a pattern of regular eating. However, if a patient does seek advice on what foods to eat, she should be encouraged to adopt a varied diet with the minimum number of prescribed foods. Patients should be discouraged from counting calories, especially from any tendency to keep a running total. During treatment they will discover that they can eat much more than they previously thought without gaining weight, in the past, they had failed to take account of the calories they had absorbed when bingeing. Occasionally patients seek advice about the quantity they should eat, and in particular whether they should eat until they feel full. They should be told that their sensations of appetite, hunger and fullness are all likely to be disturbed and that for the meantime these should not be used to determine when they should start or stop eating. Instead, each patient should adhere to the prescribed eating pattern and should consume no more than "average" sized portions of food. (This can be determined from the eating habits of friends or relatives.) A common problem is that patients are liable to feel full after eating

relatively small amounts and that this results in an urge to vomit. Feelings of fullness are especially likely to develop after eating foods perceived as fattening. This reaction is likely to be largely cognitive in nature, the result of paying undue attention to abdominal sensations that would normally pass unnoticed. Patients who are troubled by feelings of fullness after eating often benefit from wearing loose clothes at mealtimes and from engaging in distracting activities immediately afterward. They should be reassured that these feelings usually subside within an hour.

SESSION 3:

EXAMINATION OF DIARIES

PROVISION OF INFORMATION: Some discussion of the physical consequences of bingeing, vomiting and laxative abuse. Patients will be reassured that most of these physiological sequelae resolve once their eating habits have normalised, although in the case of menstruation there may be significant delay before they return regularly. (See below).

The Physical Consequences of Bulimia.

Bingeing	Self induced vomiting	Laxative abuse
Acute dilatation of of stomach(esp. hypokalemia)	metabolic disturbance	
Menstrual disturbance	cardiac arrhythmias	
painless salivary gland enlargement (parotids)	tetany & peripheral parasthesiae	
	lethargy	steatorrhea
	dehydration	
	finger clubbing	
	epileptic seizure	rebound water
	renal damage	retention on
	erosion of dental enamel	stopping
	(perimolysis)	
	chronic hoarseness	
	gastrointestinal reflux	

The above are discussed in detail in the group session.

ADVICE REGARDING EATING: Stimulus control and allied measures, eg. not engaging in other activities while eating normally or while binge eating, restricting eating to one room in the house, limiting the amount of food available while eating, practising leaving food on the plate, discarding leftover food, limiting the amount of “dangerous” food in the house (ie. food liable to be consumed when bingeing), making food relatively inaccessible, having substitute supplies of “safe” food, shopping from a list, buying foods that need preparation rather than those that can be eaten immediately, delaying binges or vomiting by a specific amount of time. In addition, patients should carefully plan their shopping and use a shopping list. They should avoid shopping when hungry or when they feel liable to overeat. When they sense their control is poor, they should carry as little money as possible.

SESSION 4:

EXAMINATION OF DIARIES.

PROVISION OF INFORMATION: The “effectiveness” of vomiting and laxative abuse as a means of weight control.

The main point to emphasise is that binges usually involve the consumption of a large number of calories (it can be salutary for patients to calculate the calorie content of a typical binge) and that self induced vomiting does not retrieve everything that has been eaten. It should also be pointed out that self induced vomiting is habit-forming, since it encourages over-eating; first, since bulimics think that by vomiting they will avoid absorbing what they have eaten, they tend to relax their dietary controls and overeat; and second, they soon discover that it is easier to vomit if their stomachs are full. As a result, a vicious circle is established, with patients becoming increasingly dependent on vomiting to compensate for their increased food intake. Where appropriate, patients should be informed that laxatives have a marginal effect on calorie absorption and that diuretics only influence fluid balance.

ADVICE ON EATING: Alternative behaviours. Patients are encouraged to make a list of pleasurable activities. Such activities may be used to occupy the time between meals and snacks, thereby reducing the likelihood of bingeing. In addition, they can help patients cope with times of difficulty, eg. times of feeling full or “fat”. It is especially important to encourage them to keep “one step ahead of the problem”. They should predict when difficulties are likely to arise and then engage in activities incompatible with bingeing. Such activities may include telephoning or visiting friends, exercising and so on.

SESSION 5:

EXAMINATION OF DIARIES.

ADVICE ABOUT EATING: Techniques for controlling the act of eating. Patients with an abnormal style of eating may find these useful. They include slowing the rate of eating by putting down utensils between mouthfuls, and completing each mouthful before starting another. Patients should also be encouraged to savour their food and to pause at regular intervals during meals. Such pauses may be used to decide whether or not to continue eating. It is also worthwhile to discourage them from drinking large quantities of liquid with their meals, as this tends to exaggerate feelings of fullness.

ADVICE ABOUT VOMITING: Vomiting per se may not need to be tackled, since in most patients it ceases once they have stopped overeating. However, patients should be instructed to choose meals and snacks that they are prepared not to vomit. If a patient feels tempted to vomit after a particular meal or snack, she should engage in a distracting activity for the following hour or so.

ADVICE ABOUT LAXATIVES & DIURETICS: Patients should be asked to cease taking these drugs and they should discard their supplies. Surprisingly, simply telling patients to abandon this habit is often successful. Those who find this instruction impossible to follow should be given a fixed withdrawal schedule during which the drugs are gradually phased out. A small number experience a temporary period of weight gain, which can probably be attributed to rebound water retention.

SESSION 6:

EXAMINATION OF DIARIES

THE REDUCTION OF DIETARY RESTRAINT.

Reduction of dietary restraint, discussion of the link between dieting and binge eating.

The therapist explains the link between dietary restraint (or “rigid dieting”) and bingeing. By having strict rules governing what and when she may or may not eat, the patient is inviting failure. She is also encouraging bingeing, since the breaking of these rules is likely to result in the abandonment of self-control. Furthermore, in order to compensate for episodes of overeating, most patients diet even more conscientiously, thereby establishing a vicious circle. Thus, patients are advised to “experiment” with eating small amounts of “banned” food in a controlled way and to experience the fact that this does not necessarily lead to bingeing.

Two forms of dietary restraint may be distinguished. First, many patients attempt to avoid eating for long periods each day, especially if they have recently overeaten. This tendency is countered by encouraging them to eat regularly. The second form of restraint consists of attempts to adhere to a highly selective diet from which all “fattening” foods are excluded. Frequently it is these foods that are eaten when the patient loses control. In order to tackle the second form of restraint, such foods must be identified. The patient should therefore be asked to identify any foods that she likes, but that she avoids eating. This may be set as a homework task.

She should be instructed to eat moderate amounts of such foods whenever she feels in control. Gradually, the patient should introduce these foods into her diet. The intention is that she should relax control over the content of her diet, while continuing to adhere to a pattern of regular eating. This practice rarely results in weight gain. Many patients are reluctant to accept this advice. From years of dieting and reading publications on slimming, they have come to believe that certain foods are inherently fattening. Nevertheless, by insisting upon the introduction of such foods, and by discussing the patient’s reaction to the prospect of eating them, it should be possible for the therapist to correct certain misconceptions about food and eating, while at the same time lessening dietary restraint. Patients who find it particularly difficult to eat such foods may remind themselves that by doing so they will be protecting themselves against bingeing.

Patients should not only eat as varied a diet as possible, but they should also relax other controls over eating. eg. some patients dislike eating foods whose calorie content is uncertain. They may insist upon preparing all their own food so that they know its precise composition. These patients should be encouraged to eat foods whose calorie content is difficult to determine. In addition, all Ss should practise eating in as wide a variety of situations as possible, eg. restaurants, dinner parties and picnics.

SESSION 7:

EXAMINATION OF DIARIES.

Consolidation of information given in previous sessions. It may be necessary to reinforce some of the information previously given, and encourage patients to share information they found helpful.

Prepare patients for termination of treatment. Run through with them techniques they have learned in previous sessions, prepare them for future difficulties.

Hand out relevant maintenance programme. Go through the programme with them and encourage them to enter in the space provided, specific tactics that they felt to be helpful to them during the course of treatment.

Inform patients that they will be followed up in four months' time.

YOUR INDIVIDUAL MAINTENANCE PLAN

Eating problems may recur from time to time. You should not feel disheartened by this, but instead remember to do some of the things that you learned to do during treatment.

You discovered during treatment that certain strategies helped you to regain control over eating. The strategies you found most helpful are listed below. These should be re-established under two sets of circumstances:

- a) If you sense that you are at risk of relapse, or;
- b) if your eating problem has deteriorated.

At such times you should use one (or more) of the following strategies which you found useful before.

1. Set some time aside so that you can reflect on your current difficulties. You need to devise a plan of action. Reckon on formally re-evaluating your progress every day or so. Some strategies may have worked, some may not.

2. Recommence monitoring everything you eat, when you eat it.

3. Restrict your eating to three or four planned meals each day, plus one or two planned snacks. Try to have these meals and snacks at predetermined times.

4. Plan your days ahead. Avoid both long periods of unstructured time and overbooking. If you are feeling at risk of losing control, plan your meals in detail so that you know exactly what and when you will be eating. In general, you should try to keep "one step ahead" of the problem.

5. Restrict your food stocks. If you feel at risk of buying too much food, carry as little money as possible.

6. Identify the times at which you are most likely to overeat (from recent experience and the evidence provided by your monitoring sheets), and plan alternative activities that are incompatible with eating, such as meeting friends, exercising, or taking a bath.

7. Whenever possible, avoid areas where stocks of food are kept. Try to keep out of the kitchen between meals.

8. If you are thinking too much about your weight, make sure you are weighing no more than once a week. If necessary, stop weighing altogether. If you want reduce weight, do so by cutting down the quantity you eat at each meal rather than by skipping meals. Remember, you should accept a weight range, and gradual changes in weight are best.

9. Set yourself limited, realistic goals. Work from hour to hour. One "failure" does not justify a succession of failures. Note your successes, however modest, on your monitoring sheets.

10. Any other strategies you have found useful.

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Before seeking professional help, try to use the strategies listed above. Remember, you have used them with benefit in the past.

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Clinical Psychologist.
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APPENDIX E. CT manual and maintenance sheet.

SESSION 1:

Introductions - Patients exchanging histories

Treatment plan is explained to them by the therapist. Aims of therapy are; to help them to identify the circumstances that result in binge eating.

to cope more effectively with such circumstances.

to reduce the frequency of their occurrence.

to identify and challenge thoughts, beliefs and values that are perpetuating the eating problem.

to help patients deal with body image misperception and body image disparagement.

Obtain verbal commitment to treatment by patients.

Explain diaries, especially the columns where food intake is linked to emotional state (columns 7 and 8). See Appendix 2 for appropriate diary.

SESSION 2:

EXAMINATION OF DIARIES.

EXAMINATION OF THE FUNCTION OF BINGEING & VOMITING:

Bingeing often conveys certain benefits, including distraction from unpleasant thoughts, short-term relief from dysphoric moods, the occupying of spare time, the induction of sleep and the provision of release from the monotony and rigors of extreme dieting. In addition, some patients eat as a means of punishing themselves, or in order to spite those who are trying to help them. Vomiting also has its rewards. Not only does it relieve the abdominal distension that follows bingeing, but it also reduces the amount of food absorbed. A minority of patients find vomiting a potent means of releasing tension and such patients may induce vomiting whenever they feel anxious.

The idea that bingeing serves a function will be novel to most patients. Usually they find this notion reassuring, since it starts to make sense of the eating problem.

Each time a patient overeats, she will be encouraged to examine why she did so. The analysis should be conducted as soon as possible afterward, and the conclusions entered in the relevant columns of the diary, together with her views on how this could have been avoided.

Invite discussion about which moods (there may be several) and situations appear to be related to bingeing and purging (using diaries as a guide).

SESSIONS 3 & 4:

EXAMINATION OF DIARIES.

THE IDENTIFICATION AND MODIFICATION OF THOUGHTS, BELIEFS AND VALUES THAT ARE PERPETUATING THE EATING PROBLEM:

The therapist will outline the rationale for identifying and examining patients' beliefs and values concerning shape and weight. By this point in treatment, most patients accept that these attitudes are relevant to their eating problem. However, many will be reluctant to discuss their feelings regarding their shape and weight, usually because

such feelings consist of shame and self-condemnation. Many have never discussed these matters before.

The specific psychopathology of bulimia is relatively uniform (Fairburn & Cooper, 1984). The most prominent feature is a profound fear of becoming fat, which is often accompanied by an extreme sensitivity to weight change. Some patients also have an intense desire to be thin. Often these specific features are associated with perfectionistic tendencies and a reliance on external criteria to gauge self-worth. Although such characteristics may be strikingly obvious to the therapist, they may not be recognised by bulimics. It is the therapist's role to help the patient identify and, where appropriate, modify these features.

Using patients' diary entries as a starting point, go through the following steps;

1. The identification of dysfunctional thoughts.

On a day-to-day basis, much of the disturbed behaviour of these patients (eg. the extreme dieting and frequent weighing) is governed by certain accessible "dysfunctional" thoughts.

To identify these, each patient will be instructed to write down her thoughts

(a) when she experiences a strong urge to overeat, or wants to weigh herself more or less often than arranged.

(b) before she is due to weigh herself and immediately afterwards, and

(c) when she "feels fat". At such times, she should specify on the monitoring sheet. Whenever possible, she should identify her thoughts then and there or as soon as possible after. At first some patients will find it difficult to identify such thoughts. It is therefore worthwhile to rehearse the procedure by asking her to recall what thoughts usually pass through her mind at such times.

In addition, the therapist can elicit thoughts by asking her to imagine what she would think if she were given a "banned" food to eat, if she were asked to weigh herself, or if someone commented on her appearance. The following thoughts are frequently identified: "I have no self control", "I might as well give up," "I will get fat," "I look fat," "I am fat," "I must lose weight," "I must diet."

2. The examination of dysfunctional thoughts.

Having identified such thoughts, the patient is taught to question their validity. There are four steps in this process.

a.) The thought should be reduced to its essence. For example, the thought, "I feel fat" may have several different meanings, including, "I am overweight", "I look overweight to myself", "I look overweight to others", or it may refer to unpleasant affective states that make the patient feel unattractive.

b.) Arguments and evidence to support the thought should be marshalled. For example, if the patient has gained weight, this fact could be said to support the thought "I am getting fat", especially if weight gain in the past has resulted in obesity.

c.) Arguments and evidence that cast doubt on the thought should be identified. Using the example above, if the patient has only gained a few pounds in weight, this cannot be equated with imminent obesity. The notion of "getting fat" should be examined and operationalized. The patient should consider such issues as "At what stage does one

become fat?” “Can ‘fatness’ be reduced to a specific shape or weight (eg. clothes size)”, and “If so, am I actually approaching this shape or weight?”

In generating counterarguments, the patient should consider what other people would think, given the particular situation concerned. Would others conclude they were getting fat if they had gained a few pounds in weight? She should ask herself whether she is applying one set of standards to herself while applying another, less rigorous set to others. She should check that she is not confusing subjective impression eg. feeling fat, with objective reality eg. being statistically overweight. She should look out for errors of attribution; eg. could the weight gain be due to premenstrual fluid retention rather than to overeating? In addition, she should check that her reasoning is not faulty. Often there are errors in the patient’s processing and interpretation of events, eg. there may be dichotomous thinking, selective abstraction or overgeneralisation.

d.) The patient should reach a reasoned conclusion, which must then be used to govern her behaviour. This conclusion should then provide a response to the specific dysfunctional thought. Some patients may choose to recite this response each time the thought occurs. (See example below, which may be used as a way of encouraging discussion, if the group is having trouble getting started).

The Identification and Examination of a Dysfunctional thought: A Clinical Example.

I have to go to a party tonight. I decided to wear a dress that I have not worn for years. I put it on and found it uncomfortably tight, whereas it used to fit me well.

Step 1. Thought “I am fat, That’s real, objective evidence.”

Step 2. Arguments in favour: “Since the dress can’t have changed, I must have gained weight.”

Step 3. Arguments against: “Yes, I may have gained weight, but that does not make me ‘fat’. I know that statistically speaking I am below average weight, moreover, my friends do not think I’m fat. Also, I’ve ignored the fact that I was markedly underweight when I bought the dress.”

Step 4. Conclusion: “It’s not that I am too big: rather it is my dress that is too small. I should give it away. I have many other clothes that I like. I must remember that I am below average weight and could not conceivably be thought of as fat.”

Occasionally it is possible to devise ways of obtaining supplementary information relevant to the particular thought in question. For example, many patients are convinced they are fat, or that parts of their bodies are fat. Often they have never discussed this thought before. In such cases it may be appropriate to suggest that they ask a trusted female friend for her uncensored view on their physique. It is also quite common for patients to insist that on some days they are “fat” and that on others they are thin, or rather, “less fat”. This proposition can be quite easily tested by suggesting that, for a period of a week or two, the patient decide each morning or not she is fat and then see whether impression matches up with her actual weight. Almost invariably, the two are found to be poorly correlated. Before proposing such “experiments”, however, the therapist should ensure that they will yield findings that will benefit the patient. After any experiment, the therapist and the patient should examine its implications.

3. Identification of dysfunctional beliefs and values.

Dysfunctional beliefs and values govern much of bulimics' behaviour, however, they are not necessarily aware of their presence or influence. They are so much a part of her conceptual scheme that she is unable to stand back and analyse them. They are implicit, unarticulated, underlying rules. For this reason, these beliefs and values cannot be identified using the technique for eliciting dysfunctional thoughts: instead, they have to be inferred from the patients' behaviour. (eg. her avoidance of "fattening" foods) and from the nature of her dysfunctional thoughts (eg. "I feel fat").

Using a Socratic style of dialogue, therapist and patient should together attempt to identify such attitudes. Typical examples include the following:

I must be thin, because to be thin is to be successful, attractive and happy.

I must avoid being fat, because to be fat is to be a failure, unattractive and unhappy.

Self-indulgence is bad since it is a sign of weakness.

Self-control is good because it is a sign of strength and discipline.

Anything less than success is utter failure.

It will be evident that such beliefs and values are extreme forms of widely held attitudes, it is their strength, personal significance and inflexibility that makes them dysfunctional.

4. Examination of dysfunctional beliefs and values. The technique for questioning these morbid beliefs and values is similar to that used when examining patients' thoughts. The therapist's role is to act as a facilitator, helping patients explore the significance and validity of their underlying attitudes. Seven steps in this process may be identified. The first four are the same as those used when examining dysfunctional thoughts.

- a. The belief or value should be specified precisely.
- b. Arguments and evidence to support the belief or value should be marshalled.
- c. Arguments and evidence against the belief or value should be identified. Again, the patient should be encouraged to check that her attitudes do not entail any errors of reasoning, to consider whether the same beliefs or values would be held by others whom she respects, and to ensure that she is not applying one set of standards to herself and another to others.
- d. The advantages of holding the particular belief or value should be considered. Many of these attitudes have definite benefits for the patient and it is partly for this reason that they are often so difficult to erode. It is therefore important for the therapist to help each patient examine what she gains by adhering to these beliefs or values eg by judging her self-worth in terms of her shape or weight, she is provided with a simple measure of her strengths or weaknesses. By showing that she can influence her shape or weight, and overcome her need to eat, she is demonstrating that she is capable of exerting control over her life. By concluding she is "fat" she is providing herself with a convenient excuse for a host of interpersonal problems.
- e. The disadvantages of holding the belief or value should now be reviewed. When its advantages are considered, it should be clear that most of the benefits are short term. In contrast, the long-term consequences are usually disadvantageous. The therapist should help each patient articulate these disadvantages eg. most

patients will admit that they are unlikely ever to be satisfied with their shape or weight.

Thus, if they retain a belief and value system in which shape and weight are given high priority, they are likely to remain perpetually dissatisfied with themselves. In addition, by being preoccupied with shape and weight, patients may fail to recognise and tackle more fundamental problems, eg. lack of assertiveness, low self esteem, problems in coping with anxiety or depression, or difficulties with relationships.

- f. The origin of these beliefs and values may be explored. To do this, the patient should reflect on the evolution of her eating problem. She should consider its earliest roots, the influence of her family and peers and the role of social pressures to be slim.

She should distinguish between factors that are likely to have contributed to the development of the problem and factors that have served to maintain it. Diaries, old photographs and talking to long-standing friends can all facilitate this exploratory process, which may be set as a homework task.

Relevant books can also be discussed and recommended for reading.

- g. Conclusions should be drawn. In general the therapist should encourage patients to adopt less extreme and more flexible beliefs and values eg. with regard to the issue of self-control, she may decide that some degree of self control is desirable, but that it is positively counterproductive to demand of oneself total self control in all spheres at all times. In certain instances she may wish to obtain supplementary information, eg. by discussing with others her beliefs. In helping the patient draw her conclusions, the therapist should place particular emphasis on how short term gains are likely to obscure long term disadvantages.

Having reached a reasoned conclusion, the patient should repeatedly remind herself of this conclusion and use it to govern her behaviour. Occasionally this may mean behaving in a manner that seems totally alien eg if she discovers that she has gained some weight, she may choose to wear clothes that highlight her figure rather than disguise it. Such behaviour would be compatible with the conclusion that "I should not evaluate myself in terms of my shape or weight."

SESSIONS 5 & 6:

EXAMINATION OF DIARIES.

BODY IMAGE MISPERCEPTION AND BODY IMAGE DISPARAGEMENT:

Occasionally a patient with bulimia exhibits unequivocal body image misperception in which she misperceives the size of part or all of her body. The therapist should attempt to help the patient recognise the phenomenon and function in spite of it. The patient should be provided with all the evidence indicating that she misperceives her shape and she should be encouraged to attribute this misperception to her disorder. She should be told that it is as if she were colour-blind with respect to her figure. Whenever she sees herself as fat, she should remind herself that she misperceives her shape, and that she should judge her size according to the opinions of trusted others and the information provided by weekly weighing.

"Body image disparagement" may coexist with body image misperception. In this case, patients do their utmost to avoid seeing their bodies, eg they will dress and undress in

the dark, avoid mirrors, wear shapeless clothes. Treatment involves exposure. Rather than avoiding seeing herself, the patient should be encouraged to look for opportunities to see and reveal her body, eg. by looking in mirrors, swimming, aerobics classes, etc.

TRAINING IN PROBLEM SOLVING.

Step 1. The problem should be identified and specified as precisely as possible. eg if the patient's plans for the evening are disrupted, she may need to review how she is going to spend the evening and what she will do about eating.

Step 2. Alternative ways of coping with the problem should be identified. The patient should think of as many potential means of coping as possible and not simply one or two extreme solutions. The more solutions that are generated, the more likely it is that a suitable one will emerge.

Step 3. The implications of each solution should be considered - in terms of its practicability and its probable effectiveness.

Step 4. One solution should be chosen - often this process is intuitive.

Step 5. The steps required to carry out the solution should be defined. The patient should rehearse these steps in her mind.

STEP 6. The entire problem solving process should be evaluated. As soon as possible the patient should review in detail her attempt at problem solving and decide how the process could have been improved. Patients who tend to devalue their achievements should quantify their degree of success by giving themselves a "mark out of 10". Patients should be encouraged to practise this method of problem solving as often as possible, entering it into their diaries. If patients use this approach effectively, it will result in an improvement in her ability to cope with situations that would previously have led to episodes of binge eating. It should also serve to counter any tendency toward "all-or-none" (dichotomous) thinking by making her generate a range of different solutions to each difficulty she encounters. It should also help her discover means of changing her mood.

Having taught patients the principles of problem solving, the therapist should ensure that in subsequent sessions each attempt at problem solving is examined and ways of improving her technique are discussed. In addition, the therapist should consider whether the patient is using problem solving often enough. At first, patients tend to underuse this technique, or use it too late in the evolution of a problem. For this reason, they should be encouraged to think ahead and look out for potential difficulties so that they can practise their problem solving skills. Most patients come to enjoy problem solving and regard it as a challenge.

SESSION 7:

EXAMINATION OF DIARIES.

THE MAINTENANCE OF PROGRESS:

Group participants should be encouraged to practise the techniques learned. They will be asked to consider how they will manage once treatment has finished. Obviously, they will not want to continue monitoring themselves indefinitely, however they should

be advised to persist in it for the meantime. They should only cease monitoring if they are certain they have complete control over eating, since the desire to stop may stem from a reluctance to acknowledge that there has been a deterioration in the eating problem. Patients are informed that normal sensations of hunger and fullness will return, if they have not done so already. Once these are established, they may be used to help her decide when to eat, so long as a pattern of regular eating is maintained. Patient should be strongly advised against dieting, since this will tend to encourage bingeing.

PREPARATION FOR DIFFICULTIES IN THE FUTURE.

The therapist should remind each patient that she may experience further difficulties in the future, especially at stressful times. In order to prepare for such times, she should construct a plan for use when she senses that her eating is becoming a problem. This may be set as a homework task. Subsequently, the plan should be discussed with the therapist, who should then prepare a formal typewritten version for each patient to keep.

Patients must be told to expect occasional setbacks. They should be reminded that they have dealt successfully with such difficulties during treatment and that they therefore have the capacity to do so in the future. They should not be disheartened by the occasional slip-up. However, at such a time they should always consider why the slip-up occurred and how they might prevent similar difficulties from arising again.

Patients will be told to expect follow-up in four months' time.

YOUR INDIVIDUAL MAINTENANCE PLAN

Eating problems may recur from time to time. You should not feel disheartened by this, but instead remember some of the things that you learned to do during treatment.

You discovered during treatment that certain strategies helped you regain control over eating. The strategies you found most helpful are listed below. These should be re-established under two sets of circumstances:

- a) If you sense you are at risk of relapse, or;
- b) If your eating problem has deteriorated.

At such times you should use any one (or more) of the following strategies which you found helpful before.

1. Set some time aside so you can reflect on your current difficulties. You need to devise a plan of action. Reckon on formally re-evaluating your progress every day or so. Some strategies may have worked, some may not.

2. Recommence monitoring everything you eat, when you eat it and the feelings that you notice around "difficult" times.

3. If you are thinking too much about your weight, make sure that you are weighing no more than once a week. If necessary, stop weighing altogether. If you want to reduce weight, do so by cutting down the quantity you eat at each meal rather than by skipping meals.

4. If you are thinking too much about your shape, this may be because you are anxious or depressed. You tend to feel fat when things are not going well. You should try problem solving in order to see whether you can identify any current problems and do something positive to solve or at least minimise them.

5. If possible, confide in someone. Explain your present predicament. A trouble shared is a trouble halved. Remember, you would not mind any friend of yours sharing his or her problems with you.

6. Set yourself limited, realistic goals. Work from hour to hour. One "failure" does not justify a succession of failures. Note your successes, however modest, on your monitoring sheets.

7. Any other strategies you have found useful.

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Before seeking professional help, try to use the strategies listed above. Remember, you have used them with benefit in the past.

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APPENDIX F. CBT manual and maintenance sheet.

SESSION 1:

ORIENTATION OF S: Ss are provided with the following information,

1. **Treatment structure:** There will be 7 group sessions , lasting roughly 2 hours' each.
2. **Treatment content:** Will be a combination of the behavioural and cognitive instructions of these two separate groups. The first part of treatment will concentrate on regaining control over eating using behavioural strategies. The second part will focus on problem solving, and the link between thought and values and concerns about shape and weight.
3. **TREATMENT STYLE AND NEED FOR COMMITMENT.** Same instructions for each group.
4. **MONITORING.** Patients are taught how to use diaries. The same diary, and instructions as per. the cognitive treatment group.
5. **WEEKLY WEIGHING.** Patients are asked to try to weigh themselves once per week. Rationale for this is explained (See session 1 behaviour therapy group).

SESSION 2:

EXAMINATION OF DIARIES.

Provision of information about eating:

The following topics are discussed, information about body weight (Session 2, behavioural group); advice about eating (Session 2, behavioural group); and techniques for controlling the act of eating (Session 5, behavioural group).

SESSION 3:

EXAMINATION OF DIARIES.

Provision of information:

About the effectiveness of vomiting and laxatives as means of weight control, and about the physical consequences of laxative abuse and excessive vomiting. (Session 3, behavioural group).

Stimulus control and allied measures (Session 3, behavioural group).

Alternative behaviours (Sessions 4 & 5, behavioural group).

Advice regarding vomiting, laxatives and diuretics (Session 6, behavioural group).

SESSION 4:

EXAMINATION OF DIARIES.

(In this session the therapist will introduce the cognitive element of treatment. Up till now, treatment has focussed on behavioural techniques.)

Focus participants' attention on relevant parts of diaries, and discuss links between thoughts, feelings and eating.

Examination of the function of bingeing and vomiting, release of tension or self punishment (Session 2, cognitive therapy).

SESSION 5:
DIARIES.

The maintenance of a pattern of regular eating.

The reduction of dietary restraint, (Session 1, cognitive therapy group).

Identification and modification of thoughts, beliefs and values that are perpetuating the eating problem, (Sessions 4 & 5 cognitive therapy group).

Examination of dysfunctional beliefs and values, (Sessions 4 & 5 cognitive therapy group).

SESSION 6:
EXAMINATION OF DIARIES.

Training in problem solving - to encourage participants not to use bingeing or vomiting as a distraction from problem solving, (Session 6, cognitive therapy group).

Body image misperception and body image disparagement, (Session 5 cognitive therapy group).

SESSION 7:
EXAMINATION OF DIARIES.

Prepare patients for termination of treatment, get them to anticipate future difficulties and make plans for coping with these. Each patient is given a maintenance plan.

Participants will also re-do the same test battery they did at the beginning of treatment.

Inform them that they will be followed up in 4 months.

YOUR INDIVIDUAL MAINTENANCE PLAN

Eating problems may recur at times of stress. You should regard your eating problems as an Achilles heel, it is the way you may react at times of difficulty.

You discovered during treatment that certain strategies helped you to regain control over eating. The strategies you found most helpful are listed below. These should be re-established under two sets of circumstances:

- a) If you sense that you are at risk of relapse, or;
- b) if your eating problem has deteriorated.

At such times there will often be some unsolved difficulty underlying your relapse or fear of relapse. You must therefore examine what is happening in your life and look for any events or difficulties that might be of relevance. Once these have been identified, you should then consider all possible solutions to these problems and construct an appropriate plan of action. In addition, you should use one or more of the following strategies to regain control over eating:

1. Set some time aside so that you can reflect on your current difficulties. You need to devise a plan of action. Reckon on formally re-evaluating your progress every day or so. Some strategies may have worked, some may not.

2. Recommence monitoring everything you eat, when you eat it.

3. Restrict your eating to three or four planned meals each day, plus one or two planned snacks. Try to have these meals and snacks at predetermined times.

4. Plan your days ahead. Avoid both long periods of unstructured time and overbooking. If you are feeling at risk of losing control, plan your meals in detail so that you know exactly what and when you will be eating. In general, you should try to keep "one step ahead" of the problem.

5. Restrict your food stocks. If you feel at risk of buying too much food, carry as little money as possible.

6. Identify the times at which you are most likely to overeat (from recent experience and the evidence provided by your monitoring sheets), and plan alternative activities that are incompatible with eating, such as meeting friends, exercising, or taking a bath.

7. Whenever possible, avoid areas where stocks of food are kept. Try to keep out of the kitchen between meals.

8. If you are thinking too much about your weight, make sure you are weighing no more than once a week. If necessary, stop weighing altogether. If you want reduce weight, do so by cutting down the quantity you eat at each meal rather than by skipping meals. Remember, you should accept a weight range, and gradual changes in weight are best.

9. If you are thinking too much about your shape, this may be because you are anxious or depressed. You tend to feel fat when things are not going well. You should try problem solving in order to see whether you can identify any current problems and do something positive to solve or at least minimize them.

10. If possible, confide in someone. Explain your current predicament. A trouble shared is a trouble halved. Remember, you would not mind any friend of yours sharing his or her problems with you.

11. Set yourself limited, realistic goals. Work from hour to hour. One "failure" does not justify a succession of failures. Note your successes, however modest, on your monitoring sheets.

Before seeking professional help, try to use the strategies listed above. Remember, you have used them with benefit in the past.

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APPENDIX G. Consent form.

Westmead Hospital and Community Health Services



Westmead Hospital
Westmead NSW 2145
Australia

Telephone 61 2 633 6686
Facsimile 61 2 635 7734
61 2 893 9062

Department of Medical Psychology

CONSENT FOR RESEARCH

Title of Project:

Indications for outcomes of psychotherapy in patients with bulimia nervosa.

Names of Chief Investigators:

Ms. Adele Hamilton

Dr. D.G. Byrne

A/Prof. S.W. Touyz

Purpose:

To evaluate how effective treatment programmes are for bulimia nervosa.

Methods and Demands:

To participate in 7 two hour group treatment sessions once per week at Westmead Hospital. There is a pre and post assessment as well as follow up assessment sessions at 4, 8 and 12 months after treatment has been concluded. Each assessment session is approximately 1 hour long.

Risks, Inconveniences and Discomforts Which May Occur;

The initial assessment will take approximately one hour. This will involve a brief history, and the patient's completing 3 questionnaires as well as a semi-structured diagnostic interview, to ascertain the presence of bulimia nervosa. The post treatment session will involve all of the above, as will the three follow up interviews.

I have been asked to participate in the above research study and give my consent by signing this form on the understanding that:

1. The research study will be carried out in a manner conforming to the principles set out by the National Health & Medical Research Council.
2. The general purposes, methods and demands and the possible risks, inconveniences and discomforts which may occur during the study have been made known.
3. Refusal to take part in this study will not affect the treatment of my condition.
4. I am volunteering to take part in this study and I may withdraw at any time.



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Australia

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Department of Medical Psychology

5. This research has been approved by the Western Sydney Area Health Services Research and Ethics Review Committees.

6. The sponsoring pharmaceutical company and Drug Regulatory Authorities may have access to my medical records for the purpose of monitoring the research, however my identity will be protected.

Signature Relationship Date

(By subject if over 16 years) Otherwise please state relationship.

If adult subject unable to consent, by Guardian/spouse/defacto/caregiver/Guardianship board.

If between 14-16 years, subject plus parent to sign. If under 14 years, parent or guardian to sign.

Witnessed by:

_____ of:

Project Approval no:

Westmead Hospital and Community Health Services



Westmead Hospital
Westmead NSW 2145
Australia

Department of Medical Psychology

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INFORMATION SHEET FOR BULIMIA STUDY

The present study is investigating which of two psychological treatments for bulimia nervosa is the most effective. These treatments (for individuals and groups) have been used successfully in Great Britain and the U.S.A.

If you are suffering from bulimia nervosa and wish to participate in one of the groups, you will;

Have an interview with an experienced clinical psychologist to assess the severity of your problem.

Complete three brief (approximately 20 minute total) pencil and paper and pencil questionnaires.

Join one of the free and confidential treatment groups which will be led by the same psychologist. There will be seven weekly group sessions, lasting 2 hours each, where a different aspect of the bulimia will be dealt with. All groups will be held at Westmead Hospital.

At the end of the treatment groups, you will have a concluding clinical interview with the psychologist, to measure your rate of improvement. You will be asked to complete the same three questionnaires that you did at the beginning.

Should you withdraw from this treatment programme, an alternate programme may be arranged.

Many studies have found that symptoms reoccur after treatment. To ensure the best possible outcome we have arranged several follow up sessions at Westmead at 4, 8 and 12 months after treatment.

This study requires you to be available for the full course of treatment, as well as for the follow ups.

I can be contacted on (06)2935980 during business hours.

APPENDIX H. Eating Disorders Examination (EDE) Cooper and Fairburn, 1987,
Edition 11.5D.

EATING DISORDERS EXAMINATION
(Diagnostic version)
(Edition 11.5D)

This interview schedule is not to be used, quoted or distributed without permission.

Christopher Fairburn

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CONTENTS

Introduction	1
Instructions for Interviewers	2
Deriving DSMIII-R diagnoses	6
Subscales	8
References	10
Interview schedule	11
Appendix	53

INTRODUCTION

The Eating Disorders Examination (EDE) is a standardised investigator-based interview, which is designed to measure the current level of the specific psychopathology of anorexia nervosa, bulimia nervosa and their variants. It is suitable for use in both community-based and clinical settings.

The development of the measure has been described elsewhere (Cooper and Fairburn, 1987). Studies of its reliability, discriminant validity and sensitivity to change have been conducted, and their findings support its use (Cooper, Cooper and Fairburn, 1989; Wilson and Smith, 1989; Rosen et. al., 1990; Fairburn et. al., in press a). In addition to providing basic descriptive information on subjects, including details of the degree of behavioural disturbance, five subscales may be derived from the ratings (viz. 'overeating', 'restraint', 'eating concern', 'shape concern' and 'weight concern').

The EDE has been translated into Spanish, German, Swedish, Finnish and Japanese. Additions have been devised for those who are pregnant and those with diabetes mellitus (Fairburn et al, in press b; Fairburn et al, in preparation).

INSTRUCTIONS FOR INTERVIEWERS

General description of the EDE

The EDE is designed to assess eating habits and attitudes to shape and weight. It is primarily a measure of present state and is therefore mainly concerned with the preceding four weeks (28 days). However, this version (11.5D) also generates DSM-III-R eating disorder diagnoses (American Psychiatric Association, 1987), and for this reason diagnostic items address the previous three months. In addition, data are elicited which allow the duration of any disorder to be determined. The diagnostic sections are encompassed within double horizontal lines and may be omitted if not required. Other differences between this version and version 11.0 are specified in the Appendix.

Form of the interview

The EDE is an example of an investigator-based interview. This contrasts with respondent-based interviews in which the subject's answers to specified questions are rated without additional questioning. Respondent-based interviews are in essence verbally administered self-report questionnaires. They work well where the concepts being assessed are simple and there is general agreement on their meaning, but they are unsatisfactory where the concepts are complex or key terms do not have a generally accepted specific meaning. With investigator-based interviews interviewers receive training to ensure that they fully understand the concepts being assessed. These interviews have a high degree of structure and operationalisation, but the structure lies in the specification to the interviewer of the concept and coding scheme rather than in the specification of the wording and individual questions (Hill et al, 1989). In summary, investigator-based interviews such as the EDE require that interviewers be trained both in the technique of interviewing and in the concepts and rules overing the ratings.

Interview techniques

When using the EDE, it is essential that the subject understands the purpose of the interview. The interviewer should explain why the interview is being conducted and, before starting formal questioning, should aim to establish good rapport. The interviewer and subject together should be trying to obtain an accurate picture of the subject's current eating habits and attitudes. It is important to explain that a standard set of questions is being asked and that some may not apply.

It should also be explained that the interview is mainly concerned with the previous four weeks (28 days). To help the subject accurately recall this period, the interviewer should devote time at the beginning of the interview to the identification of events, which have taken place during these 28 days. For example, it should be clarified whether the subject has been at home or away and what has happened on each of the four weekends. It is often helpful to refer to a diary or calendar to locate the period in question. As mentioned earlier, key diagnostic items refer the past three months: again, the interviewer should ensure that the subject is fully aware of the period under consideration. When asking about the past three months it is best to focus on each month in turn starting with the most recent month and working backward.

Each of the items in the schedule has one or more obligatory questions (asterisked) which must be asked. Special emphasis should be placed upon the words or phrases that are underlined. The obligatory questions should be supplemented with additional questions of the interviewer's choice. The items may be covered in any order although for most purposes the sequence presented in the schedule will be found to be satisfactory. It is perfectly appropriate to return to earlier items if further information emerges during the interview, which is relevant to the rating.

The phrase 'over the past four weeks' which precedes each asterisked question may be varied as seems appropriate (i.e. 'over the past month' or 'over the past 28 days') and inserted at any point within the question, but otherwise the obligatory questions should be asked as specified in the schedule.

The interview should never be undertaken in the absence of the full schedule; even the most experienced interviews need to refer to the questions, definitions and rating schemes.

The interviewer should pay careful attention to everything that the subject says. The interview should never be hurried; it should proceed at a steady relaxed pace with the interviewer not moving on to the next item until he or she is satisfied that all the necessary information has been obtained. It is good practice to check back with the subject before making each rating. The interviewer should not be rushed along by rapid, and possibly impatient, replies. Apparently glib answers which do not seem to have been given careful thought should be sensitively explored. Conversely, subjects who are loquacious and over-detailed in their replies need to be kept to the point. Care must be taken to ensure that the subject understands what information the interviewer is trying to elicit.

Rating the interview

Guidelines for making ratings are provided for each item. Ratings should be made as the interview proceeds. The instructions for making each rating are given in the square brackets and they are followed by the rating scheme itself. The majority of items are rated on a seven-point scale ranging from 0 to 6 in which either frequency or severity is rated. In most instances 0 represents the absence of the feature in question and 6 represents its presence to an extreme degree. Frequency ratings should be based on a 28-day month: if a feature is not present, rate 0; if a feature is present on up to and including 5 days, rate 1; if it is present half the time, rate 3; if it is present almost every day (with up to and including 5 exceptions), rate 5; if it is present every day, rate 6. As regards severity ratings, a rating of 1 should only be made if the feature is barely present, and a rating of 5 should be made if the feature is present to a degree not quite severe enough to justify a rating of 6. A rating of 3 should be used for degrees of severity midway between 0 and 6. If it is difficult to choose between two ratings, the lower rating (i.e. the less symptomatic) should be chosen. If, despite adequate questioning, it is impossible to decide upon a rating, use the rating 8 (i.e. the symptom cannot be excluded). Missing values (or 'not applicable') should be rated as 9. This rating scheme is summarised in the table overleaf.

Severity ratings

- 0 - Absence of the feature
- 1 - Feature almost, but not quite absent
- 2 -
- 3 - Severity midway between 0 - 6
- 4 -
- 5 - Feature present to a degree not quite severe enough to justify a rating of 6
- 6 - Feature present to an extreme degree

Frequency ratings (based on a 28-day month)

- 0 - Absence of the feature
- 1 - Feature present on 1 to 5 days
- 2 - Feature present on 6 to 12 days
- 3 - Feature present on 13 to 15 days
- 4 - Feature present on 16 to 22 days
- 5 - Feature present almost every day (23 to 27 days)
- 6 - Feature present every day

Rate 8 if, despite adequate questioning, it is impossible to decide upon a rating.

Rate 9 for missing values (or 'not applicable').

If it is difficult to choose between two ratings, the lower rating (i.e. the less symptomatic) should be used.

DERIVING DSM-III-R DIAGNOSES

This version of the EDE may be used to generate operationally defined eating disorder diagnoses. The rules currently in use in Oxford are as follows:

Anorexia Nervosa (307.10)

A. 'Refusal to maintain body weight over a minimal normal weight for age and height, for example, weight loss leading to maintenance of body weight 15% below that expected; or failure to make expected weight gain during period of growth leading to body weight 15% below that expected.'

Definition. The subject's height and weight should have been measured and reference made to tables of population norms to determine whether body is 15% or more below that expected. 'Maintained low weight' should have been rated 1.

B 'Intense fear of gaining weight or becoming fat, even though underweight.'

Definition. 'Fear of fatness' should have been rated 4, 5 or 6 for each of the past three months.

C 'Disturbance in the way in which one's body weight, size or shape is experienced, for example, the person claims to 'feel fat' even when emaciated, believes that one area of the body is 'too fat' even when obviously underweight.

Definition. 'Feelings of fatness' or 'regional fatness' should have been rated 4, 5 or 6 for each of the past three months.

D 'In females, absence of at least three consecutive menstrual cycles when otherwise expected to occur (primary or secondary amenorrhoea). (A woman is considered to have amenorrhoea if her periods occur only following hormone administration, for example oestrogen.)'

Definition. 'Menstruation' over the past three expected cycles should have been rated 0 or 7.

Bulimia Nervosa (307.51)

A 'Recurrent episodes of binge-eating (rapid consumption of a large amount of food in a discrete period of time).'

Definition. Presence of recurrent 'Objective bulimic episodes' (see item D for definition of 'recurrent').

B 'A feeling of lack of control over eating behaviour during the eating binges.'

Definition. Presence of recurrent 'Objective bulimic episodes' (see item D for definition of 'recurrent').

C 'The person regularly engages in either self-induced vomiting, use of laxatives or diuretics, strict dieting or fasting, or vigorous exercise in order to prevent weight gain.'

Definition. Presence of item vi (see below) and any one of items i, ii, iii, iv or v.

i) self-induced vomiting - 'Self-induced vomiting' should have been practised on average at least weekly over the past three months.

ii) laxative misuse - 'Laxative misuse' should have occurred on average at least weekly over the past three months.

iii) diuretic misuse - 'Diuretic misuse' should have occurred on average at least weekly over the past three months.

iv) strict dieting or fasting - 'Dietary restraint outside episodes of overeating' should have been rated 1 or 2 for each of the past three months.

v) vigorous exercise - 'Solitary exercising exclusively to control shape or weight' should have been rated 4, 5 or 6 for each of the past three months.

In addition:

vi) 'Abstinence from weight control behaviour' should have been rated 2 or less.

D 'A minimum average of two binge-eating episodes a week for at least three months.'

Definition. At least twelve 'Objective bulimic episodes' should have occurred over the past three months and the longest continuous period free from such episodes (not due to force of circumstances) should not have been greater than two weeks.

E 'Persistent overconcern with body shape and weight.'

Definition. 'Importance of shape' or 'Importance of weight' should have been rated 4, 5 or 6 for each of the past three months.

SUBSCALES

Five subscales may be derived from the EDE-11 ratings (see Cooper, Cooper and Fairburn, 1989). The items comprising these subscales are listed below. To obtain a particular subscale score, the ratings for the appropriate items should be added together and the sum divided by the total number of items forming the subscale. If ratings are only available on some items of a subscale, a score may nevertheless be obtained by dividing the resulting total by the number of rated items so long as more than half the items have been rated.

The rating for certain items must be transformed so that all items use a seven-point scale. The transformation rules are given on the following page.

Restraint

Restraint over eating (if reason rated 1)
Avoidance of eating (if reason rated 1)
Food avoidance (if reason rated 1)
Dietary rules (if reason rated 1)
Empty stomach

Overeating

Subjective loss of control over eating
Objective bulimic episodes - number of days
Objective bulimic episodes - frequency
Objective overeating - number of days
Subjective bulimic episodes - number of days
Nature of objective bulimic episodes - duration
Nature of objective bulimic episodes - fullness
Objective overeating - duration

Eating concern

Preoccupation with food or calories
Fear of losing control over eating
Social eating
Eating in secret
Guilt about eating

Shape concern

Flat stomach
Importance of shape
Preoccupation with shape and weight
Dissatisfaction with shape
Fear of fatness
Discomfort at seeing body
Feelings of fatness

Weight concern
Importance of weight
Reaction to prescribed weighing
Preoccupation with shape and weight
Dissatisfaction with weight
Pursuit of weight loss

Transformations:

i) Frequency of 'Objective bulimic episodes'

0 = No episodes	3 = 4 to 13 episodes
1 = 1 episode	4 = 14 to 28 episodes
2 = 2 or 3 episodes	5 = 29 to 56 episodes
	6 = 57 or more episodes

ii) Number of days on which there have been 'Objective bulimic episodes', episodes of 'Objective overeating' and 'Subjective bulimic episodes'

0 = No days	3 = 12 to 16 days
1 = 1 to 5 days	4 = 17 to 22 days
2 = 6 to 11 days	5 = 23 to 27 days
	6 = 28 days

iii) Duration of 'Objective bulimic episodes' and 'Objective overeating'

0 = No episodes	3 = 30 to 59 minutes
1 = 1 to 14 minutes	4 = 60 to 119 minutes
2 = 15 to 29 minutes	5 = 120 to 179 minutes
	6 = 180 or more minutes

It should be noted that not every item contributes to a subscale. Some items assess key behavioural features such as the frequency of self-induced vomiting and thus provide other measures of the severity of the disturbance. Other items are of diagnostic significance, for example, 'Maintained low weight' and 'Menstruation'. In addition, certain items address features of clinical interest, but their status as subscale items has yet to be investigated (for example, 'Vigilance about shape', 'Regional fatness' and 'Body composition').

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INTERVIEW SCHEDULE

INTRODUCTION

(It is best to start the interview proper by asking a number of introductory questions designed to obtain a general picture of the subject's eating habits. Suitable questions are suggested below.)

To begin with I should like to get a general picture of your eating habits over the last four weeks.

Have your eating habits varied much day-by-day?

Have weekdays differed from weekends?

What about the previous two months?

PATTERN OF EATING

* I would like to get an idea of your pattern of eating. Over the past four weeks which of these meals or snacks have you eaten on a regular basis?

- breakfast (meal eaten shortly after waking) ()
- mid-morning snack ()
- lunch (mid-day meal) ()
- mid-afternoon snack ()
- evening meal ()
- evening snack ()
- nocturnal snack (i.e. one after the subject has been to sleep) ()

0 - Meal or snack not eaten

1 -

2 - Meal or snack eaten on less than half the days

3 -

4 - Meal or snack eaten on more than half the days

5 -

6 - Meal or snack eaten every day

RESTRAINT OVER EATING

(Restraint subscale)

* Over the past four weeks have you been consciously trying to restrict what you eat whether or not you have succeeded?

Why?

Has this been to influence your shape or weight?

(Rate the number of days on which the subject has consciously attempted to restrict his or her food intake, whether or not he or she has succeeded. The restraint should have been intended to influence shape, weight or body composition, although this may not have been the sole or main reason. It should have consisted of planned attempts at restriction, rather than spur-of-the-moment attempts such as the decision to resist a second helping.)

0 - No attempt at restraint

1 -

2 - Attempted to exercise restraint on less than half the days

3 -

4 - Attempted to exercise restraint on more than half the days

5 -

6 - Attempted to exercise restraint every day

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AVOIDANCE OF EATING

(Restraint subscale)

* Over the past four weeks have you gone for periods of eight or more waking hours without eating anything?

Why?

Has this been to influence your shape or weight?

(Rate the number of days on which there has been at least eight hours abstinence from eating food (soup and milk shakes count as food whereas drinks in general do not) during waking hours. It may be helpful to illustrate the length of time (e.g. 9 a.m. to 5 p.m.). The abstinence must have been at least partly self-imposed rather than being due to force of circumstances. It should have been intended to influence shape, weight or body composition, although this may not have been the sole or main reason.)

0 - No such days

1 -

2 - Avoidance on less than half the days

3 -

4 - Avoidance on more than half the days

5 -

6 - Avoidance every day

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EMPTY STOMACH

(Restraint subscale)

* Over the past four weeks have you wanted your stomach to be empty?

Why?

(Rate the number of days on which the subject has had a definite desire to have an empty stomach for reasons to do with dieting, shape or weight. This should not be confused with a desire for the stomach to feel empty or be flat.)

0 - No definite desire to have an empty stomach

1 -

2 - Definite desire to have an empty stomach on less than half the days

3 -

4 - Definite desire to have an empty stomach on more than half the days

5 -

6 - Definite desire to have an empty stomach every day

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FOOD AVOIDANCE

(Restraint subscale)

* Over the past four weeks have you attempted to avoid eating any foods, which you like, whether or not you have succeeded?

What foods?

Why?

Has this been to influence your shape or weight?

(Rate the number of days on which the subject has actively attempted to avoid eating specific foods which he or she likes, whether or not he or she has succeeded. The avoidance should have been intended to influence shape, weight or body composition, although this may not have been the sole or main reason. Note the type of food avoided.)

0 - No attempts to avoid food

1 -

2 - Attempted to avoid food on less than half the days

3 -

4 - Attempted to avoid food on more than half the days

5 -

6 - Attempted to avoid food every day

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DIETARY RULES

(Restraint subscale)

* Over the past four weeks have you attempted to follow certain rigid rules regarding your eating, for example, a calorie limit, pre-set quantities of food, or rules about what you should eat or when you should eat?

* Have there been occasions where you have been aware that you have broken a dietary rule?

How have you felt about breaking them? / How would you have felt if you had broken one of your dietary rules?

What are these dietary rules? Why have you attempted to follow them? Have they been designed to influence your shape or weight?

Have they been rigid rules or general principles? Examples of rigid rules would be 'I must not eat eggs' or 'I must not eat cake', whereas you could have the general principle 'I should try to eat healthy food'.

(Dietary rules should be rated as present if the subject has been consciously restricting his or her food intake. These rules should have concerned what the subject should have eaten or when eating should have taken place. They might consist of a calorie limit (i.e. below 12 kcals) not eating before a certain time of day, not eating certain types of food or not eating at all. They should have been rigid rules and not general guidelines, and there may have been distress should they have been broken. If the subject is aware that he or she has occasionally broken a personal dietary rule, this suggests that one or more specific rules have been present. In such cases the interviewer should ask in detail about the transgression in an attempt to identify the underlying rule. The rules should have been intended to influence shape, weight or body composition, although this may not have been the sole or main reason. It should be noted that 'dietary rules' are regarded as having been present if there have been definite attempts to obey rigid dietary rules.

In summary, it is the presence of attempts to follow rigid dietary rules which counts and not the specific content of the rules themselves. Rate 0 if no dietary rule can be identified. If there has been more than one rule straddling different time periods within the four weeks, these periods should be summated to make the rating. Note the exact nature of the rules.)

("Dietary rules" continued)

- 0 - Has not attempted to obey such rules
- 1 -
- 2 - Attempted to obey such rules on less than half the days
- 3 -
- 4 - Attempted to obey such rules on more than half the days
- 5 -
- 6 - Attempted to obey such rules every day

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PREOCCUPATION WITH FOOD OR CALORIES

(Eating concern subscale)

* Over the past four weeks have you spent much time between meals thinking about eating or food or calories?

* Has thinking about eating, food or calories interfered with your ability to concentrate on things you are interested in, for example, reading, watching television or following a conversation?

(Concentration is regarded as impaired if there have been intrusive thoughts about eating, food or calories which have interfered with activities. Rate the number of days on which this has happened, whether or not bulimic episodes occurred.)

- 0 - No concentration impairment
- 1 -
- 2 - Concentration impairment on less than half the days
- 3 -
- 4 - Concentration impairment on more than half the days
- 5 -
- 6 - Concentration impairment every day

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FEAR OF LOSING CONTROL OVER EATING

(Eating concern subscale)

* Over the past four weeks have you been afraid of losing control over eating?

(Rate the number of days on which definite fear has been present, irrespective of whether the subject feels he or she has been in control or not. 'Loss of control' involves a sense that one will not be able to resist or stop eating. If the subject feels that he or she has already lost control over eating and cannot answer this question, rate 9.)

0 - No fear of losing control

1 -

2 - Fear of losing control present on less than half the days

3 -

4 - Fear of losing control present on more than half the days

5 -

6 - Fear of losing control every day

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SUBJECTIVE LOSS OF CONTROL OVER EATING

(Overeating subscale)

* Over the past four weeks have you experienced a sense of loss of control over your eating?

(Rate the number of days on which there has been a sense of loss of control over eating at the time irrespective of the amount eaten. Do not exclude days on which there were bulimic episodes.)

(N.B. In this item a different definition of 'loss of control' is used to that employed to define bulimic episodes.)

0 - No sense of loss of control over eating

1 -

2 - Sense of loss of control on less than half the days

3 -

4 - Sense of loss of control on more than half the days

5 -

6 - Sense of loss of control every day

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BULIMIC EPISODES AND OTHER EPISODES OF OVEREATING

GUIDELINES FOR INTERVIEWERS

(Four forms of episodic 'overeating' are distinguished. The distinction is based upon the presence or absence of two characteristics:

i) loss of control (required for both types of 'bulimic episode')

ii) the consumption of what would generally be regarded as a 'large' amount of food (requires for 'objective bulimic episodes' and 'objective overeating')

The classificatory scheme is summarised in the table below and key terms are defined overleaf.

	Amount eaten	
	'Large' (EDE definition)	Not 'large' (EDE definition) but viewed by subject as 'large'
'Loss of control'	Objective bulimic episodes	Subjective bulimic episodes
No 'loss Of control	Objective overeating	Subjective overeating

The interviewer should ask about each form of overeating. It is important to note that the forms of overeating are not mutually exclusive: it is possible for subjects to have had several different forms of overeating over the preceding month. With some subjects it is helpful explaining the classificatory scheme. Then, using the probe questions given below, the number of each type of episode may be determined and checked back with each subject.

Definition of key terms

'Loss of control' The interviewer should ask the subject whether he or she could have resisted the episodes of overeating (i.e. prevented them from occurring) or could have stopped them once they started, even if they had been planned. If the subject reports that this would have been difficult or impossible, 'loss of control' should be rated as present. In suggestive cases the interviewer should ask the subject how he or she felt at the time. If terms such as 'driven to eat' or 'compelled to eat' are used, this suggests that the subject would have had difficulty stopping eating. If the interviewer remains in doubt, 'loss of control' should be rated as absent.

'A large amount of food'. The decision whether or not the amount eaten was 'large' should be made by the interviewer and not the subject. 'Large' may be used to refer to the amount of any particular type of food or the overall quantity of food consumed. The interviewer should take into account what would be the usual amount eaten under the circumstances. This requires some knowledge of the eating habits of the subject's general (but not necessarily immediate) social group. What else was eaten during the day is not of relevance to this rating unless force of circumstances have encouraged overeating (for example, when eating has been unavoidable delayed), in which case the threshold for 'large' should be raised. The speed of eating and whether or not the subject subsequently spits out or vomits the food are not of relevance to this rating. If the interviewer is in doubt, the amount should not be classified as 'large'.

The number of episodes of overeating. When calculating the number of episodes of overeating, the subject's definition of separate episodes should be accepted. This should be based upon his or her feelings at the time.

Guidelines for rating the overeating section

First, ask in turn each of the four asterisked questions to identify in outline all forms of 'overeating' that have occurred over the previous 28 days. Note them down on the blank section of the coding sheet and label them 'types 1', 'type 2' etc.

Second, obtain detailed information about each type in turn to decide whether it involved eating 'large' amounts of food and whether or not there was 'loss of control' (as defined above). It is advisable to make comprehensive notes on the coding sheet. Suitable probe questions are provided. The goal is to classify the types according to the scheme described above.

Third, determine the number of days, and then occasions, on which each of the four forms of overeating has occurred.)

QUESTIONS FOR RATING ITEMS

THE FOUR ASTERISKED STATEMENTS MUST BE ASKED IN EVERY CASE.

Main probe questions

* I would like to ask you about any episodes of overeating that you may have had over the past four weeks.

* Over the past four weeks have there been any times when you have eaten a large amount of food?

* Have there been any times when you have eaten what others might regard as a large amount of food?

* Over the past four weeks have there been times when you have felt that you have eaten a large amount of food but others might not agree?

N.B. FOR SUBJECTIVE EPISODES TO BE ELIGIBLE, THEY MUST HAVE BEEN VIEWED AS 'LARGE'.

IF THERE HAVE BEEN NO SUCH EPISODES, SKIP TO 'SOCIAL EATING'.

Subsidiary probe questions

Typically what have you eaten at these times?

If you were with others, how much did they eat?

Could you have stopped eating once you had started?

Could you (at the time) have prevented these episodes from occurring?

(How did you feel at the time?)

Suggested questions for identifying boundaries between episodes:

At the time did it feel continuous or were there gaps?

Did you feel as if you had stopped?

(For each of the four forms of overeating, make the following two ratings:

- i) number of days (Rate 00 if none) () ()
- ii) number of episodes (Rate 00 if none) () () ()

In general it is best to calculate the number of days first and then the number of episodes. Rate 777 if the number of episodes are so great that their frequency cannot be calculated.

ASK ABOUT THE PRECEDING TWO MONTHS

For bulimic episodes (objective and subjective) and episodes of objective overeating, make the following two ratings:

- i) Number of episodes over the preceding two months
(Rate 999 if not asked) month 2 () () ()
- month 3 () () ()

- ii) Longest continuous period in weeks free (not due to force of circumstances) from episodes over the past three months. (Rate 99 if not asked)
- () ()

For objective bulimic episodes and episodes of objective overeating also rate duration in months of regular episodes (at least weekly). Rate 999 if not asked. Rate 100 if the onset cannot be dated but is at least five years ago. Rate 666 if the onset cannot be dated, but is at least 10 years ago.

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NATURE OF BULIMIC EPISODES

THE FOLLOWING ITEMS APPLY ONLY IF THERE WERE EPISODES OF BULIMIA (OBJECTIVE OR SUBJECTIVE EPISODES). THE RATING SHOULD REFER TO OBJECTIVE BULIMIC EPISODES, UNLESS THERE WERE NO SUCH EPISODES, IN WHICH CASE SUBJECTIVE EPISODES SHOULD BE RATED.

Duration

(Overeating subscale - if objective bulimic episodes)

Over the past four weeks, on average, how long have such episodes lasted?

(Rate the average duration of bulimic episodes in minutes, even if eating continued for several hours and there were periods when the subject was not eating. Do not include the time taken to vomit, if vomiting occurred. Rate 999 if no bulimic episodes.)

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Fullness

(Overeating subscale - if objective bulimic episodes)

Have you felt full on such occasions?

Were you distended? Was it uncomfortable or painful?
Could you physically eat any more?

(Rate on average how full the subject has felt afterwards. Rate 9 if no bulimic episodes.)

0 - Overeaten, but has not felt full

1 -

2 - Overeaten until has felt slightly uncomfortable (bloated, physical sense of having overeaten)

3 -

4 - Overeaten until has felt moderately uncomfortable (definite distension, but not painful)

5 -

6 - Overeaten until it has been physically impossible to continue (painful severe abdominal distension)

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Distress

Over the past four weeks how have you felt emotionally after such episodes? Have you been distressed? How distressed?

Some people dislike themselves - have you felt like that?

How long have such feelings lasted?

Ask the subject to describe his or her reaction to such episodes and rate accordingly. This should represent the average for the entire four weeks. Ratings 1 to 4 are based upon the duration of distress of moderate intensity. Ratings 5 and 6 require an intensely negative emotional reaction and are independent of duration. Rate 9 if no bulimic episodes.

0 - No distress after such episodes

1 -

2 - Short-lived distress after these episodes

3 -

4 - Prolonged distress after these episodes (lasting at least several hours)

5 -

6 - Marked distress (of any duration) after these episodes (intensely negative reaction associated with disgust and self-loathing)

NATURE OF EPISODES OF OBJECTIVE OVEREATING

(THE FOLLOWING ITEMS ONLY APPLY IF THERE WERE EPISODES OF OBJECTIVE OVEREATING)

Duration

(Overeating subscale)

Over the past four weeks, on average, how long have such episodes lasted?

Rate the average duration of eating in minutes, even if eating continued for several hours and there were periods when the subject was not eating. Do not include the time taken to vomit, if vomiting occurred. Rate 999 if no objective overeating.

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Fullness

Have you got full on such occasions? How full?

Were you distended? Was it uncomfortable or painful? Could you physically eat any more?

Rate on average how physically full the subject has felt afterwards. Rate 9 if no objective overeating.

0 - Overeaten, but has not felt full

1 -

2 - Overeaten until has felt slightly uncomfortable (bloated, physical sense of having overeaten)

3 -

4 - Overeaten until has felt moderately uncomfortable (definite distension, but not painful)

5 -

6 - Overeaten until it has been physically impossible to continue (painful severe abdominal distension)

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DIETARY RESTRAINT OUTSIDE EPISODES OF OVEREATING

(DSM-III-R BN)

ONLY RATE THIS ITEM IF THERE HAVE BEEN OBJECTIVE BULIMIC EPISODES OVER THE PAST THREE MONTHS.

* Outside the episodes of overeating that you have described. (refer to objective and subjective bulimic episodes)....how much have you been restricting the amount that you eat?

Typically, what have you eaten?

Has this been to influence your shape or weight?

Rate average degree of dietary restraint outside objective and subjective bulimic episodes. This should have been intended to influence shape, weight or body composition, although this may not have been the sole or main reason. Rate each of the past three months separately. Rate 9 if not asked.

0 - No extreme restraint outside bulimic episodes

1 - Extreme restraint outside bulimic episodes (i.e. low energy intake due to infrequent eating and/or consumption of low calorie foods)

2 - No eating outside bulimic episodes (i.e. 'fasting')

9 - Not applicable since no objective bulimic episodes during the month in question

month 1 ()

month 2 ()

month 3 ()

(Rate length of time in months the subject has shown extreme restraint outside bulimic episodes (rating 1 or 2 above). Rate 100 if the onset cannot be dated but is at least 5 years ago. Rate 666 if the onset cannot be dated but is at least 10 years ago. Rate 999 if not asked.

() () ()

SOCIAL EATING

Eating concern subscale

* Over the past four weeks have you been concerned about other people seeing you eat?

Have you avoided such occasions?

Rate the degree of concern about eating normal or less than normal amounts of food in front of others. This should represent the average for the entire month. If the possibility of eating with others has not arisen, rate 9. Do not consider objective bulimic episodes or episodes of objective overeating

0 - No concern about being seen eating by others and no avoidance of such occasions.

1 -

2 - Has felt slight concern at being seen eating, but no avoidance.

3 -

4 - Has felt definite concern, and has avoided some such occasions.

5 -

6 - Has felt definite concern, and has avoided all such occasions.

()

EATING IN SECRET

(Eating concern subscale)

* Over the past four weeks have you eaten in secret?

Rate the number of days on which there has been at least one episode of secret eating. Secret eating refers to eating which is furtive and which the subject wishes to conceal. If the possibility of eating with others has not arisen, rate 9. Do not consider objective bulimic episodes

0 - Has not eaten in secret

1 -

2 - Has eaten in secret on less than half the days

3 -

4 - Has eaten in secret on more than half the days

5 -

6 - Has eaten in secret every day

()

GUILT ABOUT EATING

Eating concern subscale

* Over the past four weeks have you felt guilty after eating?

On what proportion of the times that you have eaten have you felt guilty?

Have you felt that you have done something wrong? Why?

Rate the proportion of times on which feelings of guilt have followed eating. These feelings of guilt should relate to the effects of eating on shape, weight or body composition. Do not consider objective bulimic episodes, but do consider other episodes of overeating. Distinguish guilt from regret: guilt refers to a feeling that one has done wrong. N.B. This rating is based on occasions.

- 0 - No guilt after eating
- 1 -
- 2 - Has felt guilty after eating on less than half the occasions
- 3 -
- 4 - Has felt guilty after eating on more than half the occasions
- 5 -
- 6 - Has felt guilty after eating on every occasion

()

SELF-INDUCED VOMITING (DSM-III-R BN)

* Over the past four weeks have you made yourself sick as a means of controlling your shape or weight?

Rate the number of days on which there has been one or more episodes of self-induced vomiting as a means of controlling shape, weight or body composition. Rate 00 if no vomiting.

() ()

Rate the number of discrete episodes of self-induced vomiting. Accept the subject's definition of an episode. Rate 777 if the number is so great that it cannot be calculated. Rate 000 if no vomiting.

() () ()

ASK ABOUT THE PRECEDING TWO MONTHS IF PRACTISING SELF-INDUCED VOMITING TO INFLUENCE SHAPE, WEIGHT OR BODY COMPOSITION.

Rate the number of discrete episodes of self-induced vomiting over the preceding two months. Rate 999 if not asked.

month 2 () () ()
month 3 () () ()

Ascertain longest continuous period (in weeks) free (not due to force of circumstances) from such episodes over the past three months. Identify the weeks concerned. Rate 99 if not asked.

() ()

If vomiting at least once a week (excluding external constraints), rate duration in months of vomiting at this rate. Rate 100 if the onset cannot be dated but is at least 5 years ago. Rate 666 if the onset cannot be dated but is at least 10 years ago. Rate 999 if not asked.

() () ()

LAXATIVE MISUSE (DSM-III-R BN)

* Over the past four weeks have you taken laxatives as a means of controlling your shape or weight?

Rate the number of days on which laxatives have been taken as a means of controlling shape, weight or body composition. Rate 00 if no such laxative use.

() ()

Rate the number of episodes of laxative use. Rate 777 if the number is so great that it cannot be calculated. Rate 777 if the number is so great that it cannot be calculated. Rate 000 if no such laxative use.

() () ()

Rate the average number of laxatives taken on each occasion. Rate 999 if not applicable. Rate 777 if not quantifiable e.g. use of bran or laxative chocolates.

() () ()

(Note the type of laxative taken)

SKIP THE FOLLOWING TWO QUESTIONS IF THER HAS BEEN NO LAXATIVE MISSUSE.

What determines when you take these laxatives?

Is it ever to compensate for specific episodes of overeating?

Rate the number of days (and episodes) on which laxatives have been taken to compensate for specific episodes of overeating. Rate 00 if laxatives not taken in this manner. Rate 99 if not asked.

days () ()

episodes () () ()

ASK ABOUT THE PRECEDING TWO MONTHS IF TAKING LAXATIVES TO INFLUENCE
SHAPE, WEIGHT OR BODY COMPOSITION.

Rate the number of discrete episodes of laxative use over the preceding two months. Rate 000 if no
such laxative use. Rate 999 if not asked.

month 2 () () ()

month 3 () () ()

Ascertain longest continuous period (in weeks) free (not due to force of circumstances) from such
episodes over the past three months. Identify the weeks concerned. Rate 99 if not asked.

() ()

If taking laxatives at least once a week (excluding external constraints) rate in months duration of
laxative-taking at this rate. Rate 100 if the onset cannot be dated, but is at least 5 years ago. Rate 666
if the onset cannot be dated but is at least 10 years ago. Rate 999 if not asked.

() () ()

DIURETIC MISUSE (DSM-III-R BN)

* Over the past four weeks have you taken diuretics (or 'water tablets') as a means of controlling your shape or weight?

Rate the number of days on which diuretics have been taken as a means of controlling shape, weight or body composition. Exclude the use of diuretics to relieve premenstrual discomfort unless also to influence shape or weight. Rate 00 if no such diuretic use.

() ()

Rate the number of episodes of diuretic use. Rate 777 if the number is so great that it cannot be calculated. Rate 000 if no such diuretic use.

() () ()

Rate the average number of diuretics taken on each occasion. Rate 999 if not applicable. Rate 777 if not quantifiable.

() () ()

Note the type of diuretic taken.

ASK ABOUT THE PRECEDING TWO MONTHS IF TAKING DIURETICS TO INFLUENCE SHAPE, WEIGHT OR BODY COMPOSITION.

Rate the number of discrete episodes of diuretic use over the preceding two months. Rate 000 if no such diuretic use. Rate 999 if not asked.

month 2 () () ()

month 3 () () ()

Ascertain longest continuous period (in weeks) free (not due to force of circumstances) from such episodes over the past three months. Identify the weeks concerned. Rate 99 if not asked.

() ()

If taking diuretics at least once a week (excluding external constraints) rate in months duration of diuretic-taking at this rate. Rate 100 if the onset cannot be dated but is at least 5 years ago. Rate 666 if the onset cannot be dated but is at least 10 years ago. Rate 999 if not asked.

() () ()

EXERCISING TO CONTROL SHAPE OR WEIGHT

* Over the past four weeks have you exercised as a means of controlling your weight, altering your shape or amount of fat, or burning off calories?

Typically, what forms of exercise have you taken, and for how long?

How would you have felt if you could not have exercised?

Rate all forms of exercise intended to use calories or change shape, weight or body composition, although this may not have been the sole or main reason for exercising.

0 - No exercising

1 -

2 - Exercising on less than half the days

3 -

4 - Exercising on more than half the days

5 -

6 - Exercising every day

()

Rate the average time in minutes spent exercising. Rate 999 if no exercising.

() () ()

Rate the intensity of the exercise typically taken. Rate 9 if no exercising.

0 - Low intensity exercise (such as walking, gentle jogging or swimming.)

1 - High intensity exercise.

()

SOLITARY EXERCISING EXCLUSIVELY TO CONTROL SHAPE OR WEIGHT (DSM-III-R BN)

ONLY RATE THIS ITEM IF THERE HAS BEEN EXERCISING TO CONTROL SHAPE OR WEIGHT. THIS ITEM REFERS TO A PARTICULAR FORM OF EXERCISING.

* Over the past four weeks have you exercised
on your own to influence your shape, weight, or amount of fat, or to burn off calories?

How would you have felt if you could not have exercised?

Only rate the exercise that was solely intended to use calories or change shape, weight or body composition, and was not done with others (although others may have been present.)

- 0 - No solitary exercising
- 1 -
- 2 - Solitary exercising on less than half the days
- 3 -
- 4 - Solitary exercising on more than half the days
- 5 -
- 6 - Solitary exercising every day

()

Rate the average time in minutes spent exercising in this way. Rate 999 if no exercising.

() () ()

Rate the intensity of the exercise typically taken. Rate 9 if no exercising.

- 0 - Low intensity exercising (such as walking, gentle jogging or swimming.)
- 1 - High intensity exercise

()

ASK ABOUT THE PRECEDING TWO MONTHS

Rate preceding two months. If not asked, rate 9.

month 2 ()

month 3 ()

Ascertain longest continuous period in weeks free (not due to force of circumstances) from solitary exercising and rate in weeks. Identify the weeks concerned. Rate 99 if not asked.

() ()

If solitary exercising rated 4, 5 or 6 for each month, rate duration in months of exercising at this rate. Rate 100 if the onset cannot be dated but is at least 5 years ago. Rate 666 if the onset cannot be dated but is at least 10 years ago. Rate 999 if not asked.

() () ()

OTHER METHODS FOR CONTROLLING SHAPE OR WEIGHT

* Over the past four weeks have you done anything else to control your shape or weight?

Rate the number of days on which the subject has engaged in other acts designed to influence shape, weight or body composition, irrespective of whether they are likely to have been effective. Do not prompt. Possible examples include taking appetite suppressants or saunas, spitting out food and under-using insulin in subjects with insulin-dependent diabetes mellitus. Different acts should be combined to derive a total for the past four weeks. Rate 00 if no such acts.

() ()

Rate the number of occasions on which these acts have occurred. Rate 777 if the number is so great that it cannot be calculated. Rate 000 if no such acts.

() () ()

Specify the nature of the acts.

ABSTINENCE FORM WEIGHT-CONTROL BEHAVIOUR (DSM-III-R BN)

ONLY ASK THIS QUESTION IF AT LEAST ONE OF THE KEY WEIGHT-CONTROL BEHAVIOURS HAS BEEN RATED POSITIVELY AT THE SPECIFIED SEVERITY LEVEL OVER THE PAST THREE MONTHS (SEE THE SECTION ON 'DERIVING DSM-III-R DIAGNOSES'). IF THE SUBJECT DOES NOT REPORT ANY OF THE WEIGHT-CONTROL BEHAVIOURS AT THE SPECIFIED LEVEL, RATE 99.

Over the past three months has there been a period of two or more weeks when you have not...

(Ask for individual items excluding 'other methods for controlling shape or weight')

- dieted strictly ('Dietary restraint outside episodes of overeating' rated 1 or 2)**
- induced vomiting**
- used laxatives**
- used diuretics**
- exercises for shape or weight control ('Solitary exercising' rated 4, 5 or 6)**

Ascertain whether there was a period of two or more consecutive weeks over the past three months 'free' (not above threshold levels) from all the above behaviours. Do not rate abstinence due to force of circumstances. Rate number of free weeks over the past three months.

() ()

SUBJECTIVE WEIGHT

* Do you know your present weight? What is it?

Rate the subject's estimate of his or her weight in kilograms. Rate 000 if the subject is unable to provide an estimate.

() () ()

MAINTAINED LOW WEIGHT (DSM-III-R AN)

* What weight on average have you been over the past three months?

Rate average weight in kilograms. Rate 000 if subject unable to provide an estimate. Rate 999 if not asked.

() () ()

* For how long have you been within 5 pounds of this weight?

Rate duration in months. Rate 100 if the onset cannot be dated but is at least 5 years ago. Rate 666 if the onset cannot be dated but is at least 10 years ago. Rate 999 if weight not known or question not asked.

() () ()

* Over this three month period have you been trying to lose weight?

Have you been trying to make sure that you do not gain weight?

Rate presence of attempts either to lose weight or to avoid weight gain. Rate 9 if not asked.

0 - No attempts either to lose weight or to avoid weight gain over the past three months.

1 - Attempts either to lose weight or to avoid weight gain over the past three months for reasons concerning shape or weight.

2 - Attempts either to lose weight or to avoid weight gain over the past three months for other reasons (specify)

()

PURSUIT OF WEIGHT LOSS

(Weight concern subscale)

Over the past four weeks have you wanted to lose weight?
Have you had a strong desire to lose weight?

Rate the number of days on which there has been a strong desire to lose weight.

- 0 - No strong desire to lose weight
- 1 -
- 2 - Strong desire present on less than half the days
- 3 -
- 4 - Strong desire present on more than half the days
- 5 -
- 6 - Strong desire present every day

()

DISSATISFACTION WITH WEIGHT

(Weight concern subscale)

* Over the past four weeks how have you felt about your weight?
Have you been so dissatisfied that it has upset you?

Rate any degree of dissatisfaction. Assess the subject's attitude to his or her weight and rate accordingly. This should represent the average for the entire month. Do not prompt with the terms 'slight', 'moderate' or 'marked'. Rate 9 if the subject is unaware of his or her weight.

- 0 - No dissatisfaction
- 1 -
- 2 - Slight dissatisfaction (no associated distress)
- 3 -
- 4 - Moderate dissatisfaction (some associated distress)
- 5 -
- 6 - Marked dissatisfaction (extreme concern and distress; weight totally unacceptable)

()

Rate source of dissatisfaction with weight

- 0 - No dissatisfaction
- 1 - Dissatisfied because weight too low
- 2 - Dissatisfied because weight too high
- 3 - Dissatisfied because weight is both too high (subjectively) and too low (objectively)

()

DESIRED WEIGHT

- * What weight would you like to be?
- * Would you really be satisfied with that weight?

Rate weight in kilograms only if the subject is reasonably clear that this weight would be acceptable. Rate 000 if the subject is not interested in his or her weight. Rate 777 if no specific weight would be low enough. Rate 666 if the subject is primarily interested in his or her shape but has some concern about weight (but not a specific weight).

() () ()

WEIGHING

- * Over the past four weeks how often have you weighed yourself?

Calculate the approximate frequency that the subject has weighed himself or herself. Do not count being weighed by others.

If the subject has not weighed himself or herself determine whether this is the result of avoidance. Rate 777 if it is due to avoidance.

Why have you not weighed yourself?

Have you been actively avoiding knowing what you weigh?

() () ()

REACTION TO PRESCRIBED WEIGHING (Weight concern subscale)

* How would you feel if you were asked to weigh yourself once each week for the next four weeks?

Rate the strength of reaction and not its nature.

Positive reactions should be rated between 1 and 3. Check whether it would influence other aspects of the subject's life. Ask the subject to describe in detail how he or she would react and rate accordingly. This should represent the average for the entire month. Do not prompt with the terms 'slight', 'moderate' or 'marked'. If the subject would not comply with prescribed weighing because it would be extremely disturbing, rate 6.

0 - No reaction

1 -

2 - Slight reaction

3 -

4 - Moderate reaction (definite reaction, but manageable)

5 -

6 - Marked reaction (pronounced reaction which would affect other aspects of the subject's life)

()

DISSATISFACTION WITH SHAPE

(Shape concern subscale)

* Over the past four weeks how have you felt about your shape?

Have you felt so dissatisfied that it has upset you?

Rate any degree of dissatisfaction. Assess the subject's attitude to his or her shape and rate accordingly. This should represent the average for the entire month. Do not prompt with the terms 'slight', 'moderate' or 'marked'.

0 - No dissatisfaction with shape

1 -

2 - Slight dissatisfaction with shape (no associated distress)

3 -

4 - Moderate dissatisfaction with shape (some associated distress)

5 -

6 - Marked dissatisfaction with shape (extreme concern and distress, shape totally unacceptable)

()

"Dissatisfaction with shape" continued.

Rate the main cause of dissatisfaction with shape.

- 0 - No dissatisfaction
- 1 - Dissatisfied because too thin in general
- 2 - Dissatisfied because too fat in general
- 3 - Dissatisfied because of relative proportions of body (e.g. some parts of the body are viewed as too fat or too thin)
- 4 - Other cause of dissatisfaction

(..)

VIGILANCE ABOUT SHAPE

* Over the past four weeks have you been keeping a close eye on your shape, for example, by checking that certain clothes fit or by measuring yourself?

Rate the number of days on which the subject has actively monitored his or her shape with the intention of detecting any change. The subject should believe that the method used is capable of detecting change.

- 0 - No vigilance
- 1 -
- 2 - Vigilance on less than half the days
- 3 -
- 4 - Vigilance on more than half the days
- 5 -
- 6 - Vigilance every day

()

PREOCCUPATION WITH SHAPE OR WEIGHT

(Shape and weight concern subscales)

* Over the past four weeks have you spent much time thinking about your shape or weight?

* Has thinking about your shape or weight interfered with your ability to concentrate on things you are interested in; for example, read, watch television, or follow a conversation?

Concentration is regarded as impaired if there have been intrusive thoughts about shape or weight which have interfered with activities. Rate the number of days on which this happened.

0 - No concentration impairment

1 -

2 - Concentration impairment on less than half the days

3 -

4 - Concentration impairment on more than half the days

5 -

6 - Concentration impairment every day

()

IMPORTANCE OF SHAPE (DSM-III-R BN)

(Shape concern subscale)

* Over the past four weeks has your shape influenced how you feel about (judge, think, evaluate) yourself as a person?...

* If you imagine the things which influence how you feel about (judge, think, evaluate) yourself - such as your performance at work, being a parent, your marriage, how you get on with other people - and put these in order, where does your shape fit in?

Rate the degree of importance the subject has placed on body shape and its position in his or her scheme for self-evaluation. To make this rating, comparisons need to be made with other aspects of the subject's life which are of importance in his or her scheme for self-evaluation (e.g. quality of relationships, being a parent, performance at work or in leisure activities). The rating should represent the average for the entire month. Do not prompt with the terms 'some', 'moderate' or 'supreme'. If the subject has regarded both shape and weight as being of equivalent 'supreme' importance, rate 6 on this item and on 'Importance of weight'.

0 - No importance

1 -

2 - Some importance (definitely an aspect of self-evaluation)

3 -

4 - Moderate importance (definitely one of the main aspects of self-evaluation)

5 -

6 - Supreme importance (nothing is more important in the subject's scheme for evaluating himself or herself)

()

ASK ABOUT THE PRECEDING TWO MONTHS

Rate preceding two months. Rate 9 if not asked.

month 2 ()

month 3 ()

FEAR OF FATNESS DSM-III-R AN

(Shape concern subscale)

SHORTEN THE QUESTION IF THE SUBJECT IS DEFINITELY OVERWEIGHT.

* Over the past four weeks have you been afraid that you might gain weight (or become fat)?

Rate the number of days on which a definite fear has been present. Exclude reactions to actual weight gain.

0 - No definite fear of fatness or weight gain

1 -

2 - Definite fear of fatness or weight gain present on less than half the days

3 -

4 - Definite fear of fatness or weight gain present on more than half the days

5 -

6 - Definite fear of fatness or weight gain present every day

()

ASK ABOUT THE PAST THREE MONTHS

Rate preceding two months. Rate 9 if not asked.

month 2 ()

month 3 ()

If rated 4, 5 or 6 for each month, rate duration at this level in months. Rate 100 if the onset cannot be dated but is at least 5 years ago. Rate 666 if the onset cannot be dated but is at least 10 years ago. Rate 999 if not asked.

() () ()

FEAR OF FATNESS DSM-III-R AN

(Shape concern subscale)

SHORTEN THE QUESTION IF THE SUBJECT IS DEFINITELY OVERWEIGHT.

* Over the past four weeks have you been afraid that you might gain weight (or become fat)?

Rate the number of days on which a definite fear has been present. Exclude reactions to actual weight gain.

0 - No definite fear of fatness or weight gain

1 -

2 - Definite fear of fatness or weight gain present on less than half the days

3 -

4 - Definite fear of fatness or weight gain present on more than half the days

5 -

6 - Definite fear of fatness or weight gain present every day

()

ASK ABOUT THE PAST THREE MONTHS

Rate preceding two months. Rate 9 if not asked.

month 2 ()

month 3 ()

If rated 4, 5 or 6 for each month, rate duration at this level in months. Rate 100 if the onset cannot be dated but is at least 5 years ago. Rate 666 if the onset cannot be dated but is at least 10 years ago. Rate 999 if not asked.

() () ()

DISCOMFORT SEEING BODY

(Shape concern subscale)

* Over the past four weeks have you felt uncomfortable seeing your body, for example, in the mirror, in shop window reflections, while undressing or taking a bath or shower?

Have you avoided seeing your body? Why?

This discomfort should be due to the subject's sensitivity about the overall appearance of his or her shape or figure. It should not stem from sensitivity about specific aspects of appearance (for example, acne) or from modesty.

0 - No discomfort about seeing body.

1 -

2 - Some discomfort about seeing body

3 - Definite discomfort about seeing body, but no avoidance

4 - Definite discomfort about seeing body, and has avoided some such occasions

5 -

6 - Definite discomfort about seeing body, and has attempted to avoid all such occasions (i.e. the subject has attempted not to see his or her body at all even when washing)

()

AVOIDANCE OF EXPOSURE

(Shape concern subscale)

* Over the past four weeks have you felt uncomfortable about others seeing your body, for example, in communal changing rooms, when swimming or wearing clothes that show your shape?

Have you avoided such situations? Why?

The discomfort should be due to the subject's sensitivity about the overall appearance of his or her shape or figure. It should not stem from specific aspects of appearance (for example, acne) or from modesty.

0 - No discomfort about others seeing body

1 -

2 - Some discomfort about others seeing body

3 - Definite discomfort about others seeing body, but no avoidance

4 - Definite discomfort about others seeing body, and has avoided some such occasions

5 -

6 - Definite discomfort about others seeing body, and has attempted to avoid all such occasions

()

REGIONAL FATNESS (DSM-III-R AN)

(OMIT THIS ITEM IF THE SUBJECT IS DEFINITELY OVERWEIGHT AND RATE 7)

* Over the past month have you thought that any particular part of your body is too fat?

Rate the number of days on which the subject has thought that part of his or her body is too fat'.

0 - No regional fatness

1 -

2 - Regional fatness on less than half the days

3 -

4 - Regional fatness on more than half the days

5 -

6 - Regional fatness every day

()

ASK ABOUT THE PRECEDING TWO MONTHS

(Rate the preceding two months. Rate 9 if not asked.)

month 2 ()

month 3 ()

If rated 4, 5 or 6 for each month, rate duration at this level in months. Rate 100 if the onset cannot be dated but is at least 10 years ago. Rate 99 if not asked.

() () ()

FLAT STOMACH

(Shape concern subscale)

(OMIT THIS ITEM IF THE SUBJECT IS DEFINITELY OVERWEIGHT AND RATE 7.)

Over the past four weeks have you wanted your stomach to be flat?

Rate the number of days on which the subject has had a definite desire to have a flat or concave stomach. Do not rate simply the desire to have a 'flatter' stomach.

- 0 - No definite to have a flat stomach
- 1 -
- 2 - Definite desire to have a flat stomach on less than half the days.
- 3 -
- 4 - Definite desire to have a flat stomach on more than half the days
- 5 -
- 6 - Definite desire to have a flat stomach every day

()

BODY COMPOSITION

* Over the past four weeks have you thought about the actual composition of your body; for example, the proportion of fat as against muscle - the way you are under the skin?

How often have you thought about the composition of your body?

Rate the strength of the subject's concern with the proportion of fat in his or her body. This should represent the average of the entire month. Do not rate concern with being fat or concern with particular parts of the body. Do not prompt with the terms 'slight', 'moderate' or 'marked'.

- 0 - No concern about body composition
- 1 -
- 2 - Slight concern about body composition (aware of the notion, but it is of no importance).
- 3 -
- 4 - Moderate concern about body composition (clearly interested in composition of body and regularly thinks about it)
- 5 -
- 6 - (Marked concern about body composition (extreme interest in actual make up if body and frequently thinks about it)

()

MENSTRUATION (DSM-III-R AN)

* Have you missed any menstrual periods over the past few months?

* Are you taking the contraceptive 'pill'?

Rate the number of menstrual periods over the past three expected menstrual cycles. Rate 7 if the subject is taking an oral contraceptive or is pregnant or breast-feeding.

()

* What about the previous six months?

Rate the number of menstrual periods over the past six expected menstrual cycles. Rate 77 if the subject is taking an oral contraceptive or is pregnant or breast-feeding.

() ()

If currently amenorrhoeic, rate duration in months apart from when the subject has been pregnant or breast-feeding. Rate 999 if not asked.

() () ()

END OF SCHEDULE

N.B. THE SUBJECT'S HEIGHT AND WEIGHT SHOULD BE MEASURED.

APPENDIX I. Beck Depression Inventory (BDI) Beck et al., 1961.



Date: _____

Name: _____ Marital Status: _____ Age: _____ Sex: _____

Occupation: _____ Education: _____

This questionnaire consists of 21 groups of statements. After reading each group of statements carefully circle the number (0, 1, 2 or 3) next to the one statement in each group which **best** describes the way you have been feeling the **past week, including today**. If several statements within a group seem to apply equally well, circle each one. **Be sure to read all the statements in each group before making your choice.**

<p>1 0 I do not feel sad. 1 I feel sad. 2 I am sad all the time and I can't snap out of it. 3 I am so sad or unhappy that I can't stand it.</p> <p>2 0 I am not particularly discouraged about the future. 1 I feel discouraged about the future. 2 I feel I have nothing to look forward to. 3 I feel that the future is hopeless and that things cannot improve.</p> <p>3 0 I do not feel like a failure. 1 I feel I have failed more than the average person. 2 As I look back on my life, all I can see is a lot of failures. 3 I feel I am a complete failure as a person.</p> <p>4 0 I get as much satisfaction out of things as I used to. 1 I don't enjoy things the way I used to. 2 I don't get real satisfaction out of anything anymore. 3 I am dissatisfied or bored with everything.</p> <p>5 0 I don't feel particularly guilty. 1 I feel guilty a good part of the time. 2 I feel quite guilty most of the time. 3 I feel guilty all of the time.</p> <p>6 0 I don't feel I am being punished. 1 I feel I may be punished. 2 I expect to be punished. 3 I feel I am being punished.</p> <p>7 0 I don't feel disappointed in myself. 1 I am disappointed in myself. 2 I am disgusted with myself. 3 I hate myself.</p>	<p>8 0 I don't feel I am any worse than anybody else. 1 I am critical of myself for my weaknesses or mistakes. 2 I blame myself all the time for my faults. 3 I blame myself for everything bad that happens.</p> <p>9 0 I don't have any thoughts of killing myself. 1 I have thoughts of killing myself, but I would not carry them out. 2 I would like to kill myself. 3 I would kill myself if I had the chance.</p> <p>10 0 I don't cry any more than usual. 1 I cry more now than I used to. 2 I cry all the time now. 3 I used to be able to cry, but now I can't cry even though I want to.</p> <p>11 0 I am no more irritated now than I ever am. 1 I get annoyed or irritated more easily than I used to. 2 I feel irritated all the time now. 3 I don't get irritated at all by the things that used to irritate me.</p> <p>12 0 I have not lost interest in other people. 1 I am less interested in other people than I used to be. 2 I have lost most of my interest in other people. 3 I have lost all of my interest in other people.</p> <p>13 0 I make decisions about as well as I ever could. 1 I put off making decisions more than I used to. 2 I have greater difficulty in making decisions than before. 3 I can't make decisions at all anymore.</p>
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_____ Subtotal Page 1

CONTINUED ON BACK

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9-018351

- 3 I don't feel I look any worse than I used to.
- 1 I am worried that I am looking old or unattractive.
- 2 I feel that there are permanent changes in my appearance that make me look unattractive.
- 3 I believe that I look ugly.

- 0 I can work about as well as before.
- 1 It takes an extra effort to get started at doing something.
- 2 I have to push myself very hard to do anything.
- 3 I can't do any work at all.

- 0 I can sleep as well as usual.
- 1 I don't sleep as well as I used to.
- 2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
- 3 I wake up several hours earlier than I used to and cannot get back to sleep.

- 0 I don't get more tired than usual.
- 1 I get tired more easily than I used to.
- 2 I get tired from doing almost anything.
- 3 I am too tired to do anything.

- 0 My appetite is no worse than usual.
- 1 My appetite is not as good as it used to be.
- 2 My appetite is much worse now.
- 3 I have no appetite at all anymore.

- 19 0 I haven't lost much weight, if any, lately.
- 1 I have lost more than 5 pounds.
- 2 I have lost more than 10 pounds.
- 3 I have lost more than 15 pounds.

I am purposely trying to lose weight by eating less. Yes _____ No _____

- 20 0 I am no more worried about my health than usual.
- 1 I am worried about physical problems such as aches and pains; or upset stomach; or constipation.
- 2 I am very worried about physical problems and it's hard to think of much else.
- 3 I am so worried about my physical problems that I cannot think about anything else.

- 21 0 I have not noticed any recent change in my interest in sex.
- 1 I am less interested in sex than I used to be.
- 2 I am much less interested in sex now.
- 3 I have lost interest in sex completely.

_____ Subtotal Page 2

_____ Subtotal Page 1

_____ Total Score

APPENDIX J. Profile of Mood States Questionnaire (POMS) McNair et al., 1971.

NAME _____ DATE _____

SEX: Male (M) Female (F)

Below is a list of words that describe feelings people have. Please read each one carefully. Then fill in ONE circle under the answer to the right which best describes HOW YOU HAVE BEEN FEELING DURING THE PAST WEEK INCLUDING TODAY.

The numbers refer to these phrases.

- 0 = Not at all
1 = A little
2 = Moderately
3 = Quite a bit
4 = Extremely

Col (C)

O.P. (O)

IDENTIFICATION

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9

1. Friendly 0 1 2 3 4

2. Tense 0 1 2 3 4

3. Angry 0 1 2 3 4

4. Worn out 0 1 2 3 4

5. Unhappy 0 1 2 3 4

6. Clear-headed 0 1 2 3 4

7. Lively 0 1 2 3 4

8. Confused 0 1 2 3 4

9. Sorry for things done 0 1 2 3 4

10. Shaky 0 1 2 3 4

11. Listless 0 1 2 3 4

12. Peeved 0 1 2 3 4

13. Considerate 0 1 2 3 4

14. Sad 0 1 2 3 4

15. Active 0 1 2 3 4

16. On edge 0 1 2 3 4

17. Grouchy 0 1 2 3 4

18. Blue 0 1 2 3 4

19. Energetic 0 1 2 3 4

20. Panicky 0 1 2 3 4

21. Hopeless 0 1 2 3 4

22. Relaxed 0 1 2 3 4

23. Unworthy 0 1 2 3 4

24. Spiteful 0 1 2 3 4

25. Sympathetic 0 1 2 3 4

26. Uneasy 0 1 2 3 4

27. Restless 0 1 2 3 4

28. Unable to concentrate 0 1 2 3 4

29. Fatigued 0 1 2 3 4

30. Helpful 0 1 2 3 4

31. Annoyed 0 1 2 3 4

32. Discouraged 0 1 2 3 4

33. Resentful 0 1 2 3 4

34. Nervous 0 1 2 3 4

35. Lonely 0 1 2 3 4

36. Miserable 0 1 2 3 4

37. Muddled 0 1 2 3 4

38. Cheerful 0 1 2 3 4

39. Bitter 0 1 2 3 4

40. Exhausted 0 1 2 3 4

41. Anxious 0 1 2 3 4

42. Ready to fight 0 1 2 3 4

43. Good natured 0 1 2 3 4

44. Gloomy 0 1 2 3 4

45. Desperate 0 1 2 3 4

46. Sluggish 0 1 2 3 4

47. Rebellious 0 1 2 3 4

48. Helpless 0 1 2 3 4

49. Weary 0 1 2 3 4

50. Bewildered 0 1 2 3 4

51. Alert 0 1 2 3 4

52. Deceived 0 1 2 3 4

53. Furious 0 1 2 3 4

54. Efficient 0 1 2 3 4

55. Trusting 0 1 2 3 4

56. Full of pep 0 1 2 3 4

57. Bad-tempered 0 1 2 3 4

58. Worthless 0 1 2 3 4

59. Forgetful 0 1 2 3 4

60. Carefree 0 1 2 3 4

61. Terrified 0 1 2 3 4

62. Guilty 0 1 2 3 4

63. Vigorous 0 1 2 3 4

64. Uncertain about things 0 1 2 3 4

65. Bushed 0 1 2 3 4

MAKE SURE YOU HAVE ANSWERED EVERY ITEM.



APPENDIX K. Tables of Statistics for Study 2.

APPENDIX K. STATISTICAL TABLES FROM STUDY 2.

Table K1 One Way ANOVA frequency of bingeing by group after treatment

Source of Variance	DF	SS	MS	F	P
Between Groups	3	14374.70	4791.56	6.55	.0006
Within Groups	70	51132.81	730.46		
Total	73	65507.51			

One Way ANOVA frequency of bingeing by group at 4 months

Source of Variance	DF	SS	MS	F	P
Between Groups	2*	26.75	13.37	1.53	.22
Within Groups	44	384.49	8.73		
Total	46	411.25			

One Way ANOVA frequency of bingeing by group at 8 months

Source of Variance	DF	SS	MS	F	P
Between Groups	2	83.82	41.90	4.51	.01
Within Groups	39	362.39	9.29		
Total	41	446.21			

One Way ANOVA frequency of bingeing by group at 12 months

Source of Variance	DF	SS	MS	F	P
Between Groups	2	86.76	43.38	6.22	.004
Within Groups	37	257.97	6.97		
Total	39	344.74			

Pre-post frequency of bingeing 2x4 repeated measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within = Residual	70	299.02	4.27		
Time	1	309.05	309.05	72.35	.0001
Group x Time	3	74.01	24.67	5.77	.001

Table K2 One Way ANOVA frequency of vomiting by group after treatment.

Source of Variance	DF	SS	MS	F	P
Between Groups	3	78.49	26.16	2.81	.04
Within Groups	70	651.67	9.30		
Total	73	750.16			

One Way ANOVA frequency of vomiting by group at four months

Source of Variance	DF	SS	MS	F	P
Between Groups	2	.40	.20	.04	.95
Within Groups	44	193.66	4.40		
Total	46	194.06			

One Way ANOVA frequency of vomiting at eight months

Source of Variance	DF	SS	MS	F	P
Between Groups	2	8.17	9.08	.87	.42
Within Groups	39	404.38	10.36		
Total	41	422.55			

One Way ANOVA frequency of vomiting at 12 months

Source of Variance	DF	SS	MS	F	P
Between Groups	2	21.76	10.88	1.76	.18
Within Groups	37	228.49	6.17		
Total	39	250.26			

Pre-post frequency of vomiting 2x4 repeated measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	303.81	4.34		
Time	1	200.55	200.55	46.21	.0001
Group x Time	3	25.25	8.42	1.94	.131

Table K3 One Way ANOVA Frequency of laxative use after treatment

Source of Variance	DF	SS	MS	F	P
Between Groups	3	9.12	3.04	1.76	.16
Within Groups	70	120.88	1.72		
Total	73	130.00			

Table K4 One way ANOVA Frequency of Exercise after treatment

Source of Variance	DF	SS	MS	F	P
Between Groups	3	1209.84	403.28	3.39	.02
Within Groups	70	8322.53	118.89		
Total	73	9532.37			

Table K5 One Way ANOVA EDE restriction of amount eaten after treatment.

Source of Variance	DF	SS	MS	F	P
Between Groups	3	61.16	20.38	3.68	.02
Within Groups	70	387.49	5.53		
Total	73	448.66			

Pre-Post restriction of amount eaten MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	12570.32	179.58		
Time	1	1330.18	1330.18	7.41	.008
Group x Time	3	1680.07	560.02	3.12	.031

Table K6 One Way ANOVA EDE “avoidance of food types” after treatment

Source of Variance	DF	SS	MS	F	P
Between groups	3	51.80	17.26	3.19	.02
Within groups	70	378.20	5.40		
Total	73	430.01			

Pre-Post Repeated Measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	287.62	4.11		
Time	1	44.62	44.62	10.86	.002
Group by Time	3	11.14	3.71	.90	.44

Table K7 Total EDE Restraint One Way ANOVA

Source of Variance	DF	SS	MS	F	P
Between Groups	3	789.83	263.27	4.96	.003
Within Groups	70	3714.17	53.05		
Total	73	4504.01			

Pre-Post Total EDE Restraint Repeated Measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	3193.88	45.63		
Time	1	1428.39	1428.39	31.31	.0001
Group by Time	3	243.88	81.29	1.78	.13

Table K8 EDE Subjective Loss of Control One Way ANOVA

Source of Variance	DF	SS	MS	F	P
Between Groups	3	127.15	42.38	13.72	.0001
Within Groups	70	216.19	3.08		
Total	73	343.35			

One Way ANOVA EDE “Subjective loss of control” at 12 months

Source of Variance	DF	SS	MS	F	P
Between Groups	2	35.91	17.95	4.51	.01
Within Groups	37	147.06	3.97		
Total	39	182.97			

Pre-Post EDE “Subjective loss of control” 2 X 4 Repeated Measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	133.18	3.90		
Time	1	103.37	103.37	54.33	.0001
Group by Time	3	47.63	15.88	8.34	.0001

Table K9 EDE Objective Bulimic Days One Way ANOVA Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	112.87	37.62	11.30	.0001
Within Groups	70	232.90	3.32		
Total	73	345.78			

Objective Bulimic Days One Way ANOVA at 12 mths

Source of Variance	DF	SS	MS	F	P
Between Groups	3	35.91	17.95	4.51	.017
Within Groups	70	147.06	3.97		
Total	73	182.97			

Objective Bulimic Days Pre-Post Repeated measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	111.59	1.59		
Time	1	95.72	95.72	60.05	.0001
Group by Time	3	57.55	19.18	12.03	.0001

Table K10 EDE Duration of binge One Way ANOVA post treatment

Source of Variance	DF	SS	MS	F	P
Between Groups	3	76.48	26.49	8.70	.0001
Within Groups	70	205.13	2.93		
Total	73	281.62			

Duration of Binge One Way ANOVA-12 mths

Source of Variance	DF	SS	MS	F	P
Between Groups	3	30.90	15.45	3.62	.03
Within Groups	70	157.87	4.26		
Total	73	188.77			

Pre-Post Duration of binge Repeated Measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	93.99	1.33		
Time	1	28.34	28.34	21.21	.0001
Group by Time	3	43.97	14.66	10.99	.0001

Table K11 EDE Fullness after binge. One Way ANOVA

Source of Variance	DF	SS	MS	F	P
Between Groups	3	76.18	25.39	5.83	.001
Within Groups	70	304.41	4.34		
Total	73	380.59			

Fullness after binge-12 mths-One Way ANOVA

Source of Variance	DF	SS	MS	F	P
Between Groups	3	70.13	35.06	7.51	.001
Within Groups	70	172.63	4.66		
Total	73	242.77			

Pre-Post Fullness MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	165.28	2.36		
Time	1	61.96	61.96	26.24	.0001
Group by Time	3	46.53	15.51	6.57	.001

Table K12 EDE Preoccupation with food One Way ANOVA Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	84.43	28.14	5.25	.002
Within Groups	70	374.60	5.35		
Total	73	459.04			

Pre-Post MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	212.45	3.03		
Time	1	84.02	84.02	27.68	.0001
Group by Time	3	34.74	11.58	3.82	.01

Table K13 EDE fear of loss of control One Way ANOVA Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	134.17	44.72	10.07	.0001
Within Groups	70	310.81	4.44		
Total	73	444.98			

One Way ANOVA 12 MTHS

Source of Variance	DF	SS	MS	F	P
Between Groups	3	34.53	17.26	3.80	.03
Within Groups	70	167.86	4.53		
Total	73	202.40			

Pre-post MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	202.57	2.89		
Time	1	87.15	87.15	30.12	.0001
Group by Time	3	53.65	17.88	6.18	.001

Table K14 One Way ANOVA EDE "Social eating" after treatment

Source of Variance	DF	SS	MS	F	P
Between Groups	3	51.37	17.12	3.91	.01
Within Groups	70	306.51	4.37		
Total	73	359.94			

2 X 4 Repeated measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	181.28	2.59		
Time	1	21.52	21.52	8.31	.005
Group by Time	3	21.02	7.01	2.71	.052

Table K15 EDE Secret Eating eating-post One Way ANOVA

Source of Variance	DF	SS	MS	F	P
Between Groups	3	43.41	14.47	3.59	.01
Within Groups	70	281.67	4.02		
Total	73	325.09			

2 X 4 Repeated measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	214.96	3.07		
Time	1	93.10	93.10	30.32	.0001
Group by Time	3	24.18	8.06	2.62	.05

Table K16 EDE Total Eating Concern OneWay ANOVA Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	1228.07	409.39	6.93	.004
Within Groups	70	4134.59	59.06		
Total	73	5362.66			

2 X 4 Repeated measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	2004.17	28.63		
Time	1	1854.27	1854.27	64.76	.0001
Group by Time	3	762.15	254.05	8.87	.0001

Table K17 EDE Shape Dissatisfaction One Way ANOVA Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	61.69	20.56	4.84	.004
Within Groups	70	287.40	4.24		
Total	73	359.09			

2 X 4 Repeated measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	154.88	2.21		
Time	1	28.42	28.42	12.85	.001
Group by Time	3	21.15	7.05	3.19	.02

Table K18 EDE Shape Preoccupation One Way ANOVA Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	149.03	49.67	9.98	.0001
Within Groups	70	348.32	4.97		
Total	73	487.36			

2 X 4 Repeated measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	213.55	3.05		
Time	1	70.33	70.33	23.05	.0001
Group by Time	3	54.37	18.12	5.94	.001

Table K19 EDE Importance of Shape One Way ANOVA Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	60.93	20.31	5.65	.001
Within Groups	70	251.34	3.59		
Total	73	312.28			

2 X 4 Repeated measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	6822.34	97.46		
Time	1	3219.20	3219.20	33.03	.0001
Group by Time	3	1445.23	481.74	4.94	.004

Table K20 EDE Fear of Fatness One Way ANOVA Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	151.22	50.40	11.57	.0001
Within Groups	70	304.89	4.35		
Total	73	456.12			

2 X 4 Repeated measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	7640.95	109.16		
Time	1	5080.00	5080.00	46.54	.0001
Group by Time	3	3529.87	1176.62	10.78	.0001

Table K21 EDE Body Discomfort One Way ANOVA Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	106.33	35.44	7.31	.0002
Within Groups	70	339.03	4.84		
Total	73	445.36			

2 X 4 Repeated measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	141.02	2.01		
Time	1	32.85	32.85	16.31	.0001
Group by Time	3	38.55	12.85	6.38	.001

Table K22 EDE Feelings of Fatness One Way ANOVA Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	76.02	25.34	5.02	.003
Within Groups	70	352.84	5.04		
Total	73	428.86			

2 X 4 Repeated measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	154.73	2.21		
Time	1	52.61	52.61	23.80	.0001
Group by Time	3	55.22	18.41	8.33	.0001

Table K23 One Way ANOVA EDE "Flat Stomach" Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	54.91	18.30	2.90	.04
Within Groups	70	441.57	6.30		
Total	73				

2 X 4 Repeated Measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	10266.11	146.66		
Time	1	3690.18	90.18	25.16	.000
Group by Time	3	2137.17	712.39	4.86	.004

Table K24 EDE Total Shape Concern One Way ANOVA Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	5018.00	1672.66	9.01	.0001
Within Groups	70	12984.87	185.49		
Total	73	18002.87			

2 X 4 Repeated Measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	4188.72	59.84		
Time	1	3618.09	3618.09	60.46	.0001
Group by Time	3	2385.42	795.14	13.29	.0001

Table K25 EDE Weight Dissatisfaction One Way ANOVA Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	54.91	18.30	2.90	.04
Within Groups	70	441.57	6.30		
Total	73				

2 X 4 Repeated Measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	188.87	2.70		
Time	1	36.64	36.64	13.58	.0001
Group by Time	3	25.57	8.52	3.16	.03

Table K26 EDE Weekly Weighing One Way ANOVA Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	126.19	42.06	8.19	.0001
Within Groups	70	359.32	5.13		
Total	73	285.51			
One Way ANOVA 12 mths					
Source of Variance	DF	SS	MS	F	P
Between Groups	3	35.93	17.96	3.41	.04
Within Groups	70	194.84	5.26		
Total	73	230.77			

Table K27 EDE Weight Preoccupation One Way ANOVA Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	149.03	49.67	9.98	.0001
Within Groups	70	348.32	4.97		
Total	73				
2 X 4 Repeated Measures MANOVA					
Source of Variance	DF	SS	MS	F	P
Within + Residual	70	213.55	3.05		
Time	1	70.33	70.33	23.05	.0001
Group by Time	3	54.37	18.12	5.94	.001

Table K28EDE Importance of Weight One Way ANOVA Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	79.48	26.49	7.95	.0001
Within Groups	70	233.00	3.32		
Total	73				
One Way ANOVA 12 mths					
Source of Variance	DF	SS	MS	F	P
Between Groups	3	60.66	30.33	3.26	.04
Within Groups	70	474.37	9.30		
Total	73	535.03			
2 X 4 Repeated Measures MANOVA					
Source of Variance	DF	SS	MS	F	P
Within + Residual	70	114.80	1.64		
Time	1	50.40	50.40-	30.73	.0001
Group by Time	3	29.15	9.72	5.92	.001
Table K28 EDE Total Weight Concern One Way ANOVA Post					
Source of Variance	DF	SS	MS	F	P
Between Groups	3	1987.81	662.60	10.04	.0001
Within Groups	70	4617.58	65.96		
Total	73				

One Way ANOVA 12 mths

Source of Variance	DF	SS	MS	F	P
Between Groups	3	615.42	307.71	3.977	.02
Within Groups	70	2867.54	77.50		
Total	73				

2 X 4 Repeated Measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	2074.11	29.63		
Time	1	811.30	811.30	27.38	.0001
Group by Time	3	794.03	264.68	8.93	.0001

Table K29 One Way ANOVA BDI Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	718.14	572.7	13.88	.01
Within Groups	70	10328.99	147.55		
Total	73	12047.13			

2 X 4 Repeated Measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	3651.47	52.16		
Time	1	1793.45	1793.45	34.38	.0001
Group by Time	3	255.21	85.07	1.63	.19

Table K 30 DT One Way ANOVA Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	324.71	108.23	2.96	.037
Within Groups	70	2552.64	36.46		
Total	73	2877.36			

2 X 4 Repeated Measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	850.55	12.15		
Time	1	317.71	317.71	26.15	.0001
Group by Time	3	110.13	36.71	3.02	.03

Table K31 One Way ANOVA Bulimia Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	502.68	167.56	5.43	.002
Within Groups	70	2159.16	30.84		
Total	73	2661.85			

2 X 4 Repeated Measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	8771.98	12.46		
Time	1	599.05	599.05	48.09	.0001
Group by Time	3	215.19	71.73	5.76	.001

Table K32 One Way ANOVA Interoceptive Awareness Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	489.40	163.13	2.98	.03
Within Groups	70	3827.08	54.67		
Total	73	4316.48			

2 X 4 Repeated Measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	1805.95	25.80		
Time	1	490.55	490.55	19.01	.0001
Group by Time	3	123.25	41.08	1.59	.19

Table K 33 One Way ANOVA Total EDI Post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	12542.80	4180.93	3.41	.02
Within Groups	70	85795.47	1225.64		
Total	73	98338.28			

2 X 4 Repeated Measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	103.77	1.48		
Time	1	46.72	46.72	31.52	.0001
Group by Time	3	15.49	5.16	3.48	.02

Table K34 One Way ANOVA POMS Depression score post

Source of Variance	DF	SS	MS	F	P
Between Groups	3	2451.31	817.10	3.45	.02
Within Groups	70	16571.06	236.72		
Total	73	19022.37			

2 X 4 Repeated Measures MANOVA

Source of Variance	DF	SS	MS	F	P
Within + Residual	70	7919.94	113.14		
Time	1	3865.89	3865.89	34.17	.0001
Group X Time	71	873.06	291.02	2.57	.06

Table K35 MANCOVA EDE Restraint subtest

Source of Variance	DF	SS	MS	F	P
Within + Residual	153	441.50	2.89		
Time	3	3.75	1.25	0.43	.73

Table K36 MANCOVA EDE Overeating subtest

Source of Variance	DF	SS	MS	F	P
Within + Residual	153	63.73	.42		
Time	3	1.27	.42	1.02	.38

Table K37 MANCOVA EDE Overeating subtest

Source of Variance	DF	SS	MS	F	P
Within + Residual	153	155.37	1.02		
Time	3	.63	.21	.21	.89

Table K38 MANCOVA EDE Overeating subtest

Source of Variance	DF	SS	MS	F	P
Within + Residual	153	18.28	.12		
Time	3	.00	.00	.01	.99

APPENDIX L. New CBT Manual.

APPENDIX L.

NEW COGNITIVE BEHAVIOURAL TREATMENT.

SESSION 1:

ORIENTATION OF PATIENTS: Patients are provided with the following information;

1. Treatment Structure; There will be 5 group sessions, lasting roughly 2 hours each.
2. Treatment content; a) Regaining control, (Session 1, CBT).
3. Monitoring (Session 1, CBT).
4. Weekly weighing (Session 1, CBT).

SESSION 2:

REVIEW OF DIARIES.

Provision of information about weight (Session 2, CBT).

Provision of information about the effectiveness of vomiting and laxatives as means of weight control (Session 3, CBT).

Advice about eating (Session 2, CBT).

Techniques for controlling the act of eating (Session 2, CBT).

SESSION 3:

REVIEW OF DIARIES.

Alternative behaviours (Session 3, CBT).

Reduction of dietary restraint (Session 5, CBT).

In this session the therapist will introduce the cognitive element of treatment. Up to now, the focus has been on behavioural control.

Attention should be focussed on the relevant sections of the diaries. Raise the possibility that the bingeing and purging may serve a purpose in patients' lives, (Session 4, CBT).

SESSION 4:

REVIEW OF DIARIES.

Identification and modification of thoughts, beliefs and values that are perpetuating the eating problem (Session 5, CBT).

Training in problem solving (Session 6, CBT).

SESSION 5:

REVIEW OF DIARIES.

Examination of dysfunctional beliefs and values that are related to the faulty problem solving techniques. (Session 5, CBT).

Prepare participants for termination of treatment. Get them to anticipate future difficulties and make plans for coping with these. Patients are given individual maintenance plans.

They will re-do the test battery they completed prior to treatment.

They will be informed that they will be followed up in four months' time.

APPENDIX M. Tables of Statistics for Study 3.

STATISTICAL TABLES FOR STUDY 3

M1 One Way ANOVA Post treatment f. vomit

Source of Variance	DF	SS	MS	F	P
Between groups	4	89.84	22.46	2.78	.03
Within groups	88	708.73	8.05		
Total	92	789.57			

One Way ANOVA 12 mths

Source of Variance	DF	SS	MS	F	P
Between groups	4	41.14	13.71	2.65	.05
Within groups	88	253.39	5.17		
Total	92	294.53			

Pre post MANOVA

Source of Variance	DF	SS	MS	F	P
Within+residual	88	372.09	4.23		
Time	1	271.77	271.77	64.28	.0001
GroupXTime	4	43.38	10.85		

Table M2 One Way ANOVA f binge post

Source of Variance	DF	SS	MS	F	P
Between groups	4	12029.41	3007.35	3.30	.03
Within groups	88	80119.23	910.44		
Total	92	92148.64			

One Way ANOVA 8 MTHS

Source of Variance	DF	SS	MS	F	P
Between groups	4	7540.39	2646.79	3.45	.02
Within groups	88	39064.51	765.97		
Total	92	47004.90			

Pre post MANOVA

Source of Variance	DF	SS	MS	F	P
Within+residual	88	53674.94	609.94		
Time	1	28941.16	28941.16	47.45	.0001
GroupXTime	4	6983.38	1745.84	2.86	.02

M3 Pre post MANOVA f. Laxative use

Source of Variance	DF	SS	MS	F	P
Within+residual	88	139.98	1.59		
Time	1	10.50	10.50	6.60	.01
GroupXTime	4	13.31	3.33	2.09	.08

M4 One Way ANOVA EDE restriction of food Post

Source of Variance	DF	SS	MS	F	P
Between groups	4	62.81	15.70	2.72	.03
Within groups	88	507.18	5.76		
Total	92	570.00			

Pre post MANOVA

Source of Variance	DF	SS	MS	F	P
Within+residual	88	348.43	3.96		
Time	1	49.27	49.27	12.44	.001
GroupXTime	4	44.06	11.02	2.78	.03

M5 Pre post MANOVA EDE Avoidance of eating

Source of Variance	DF	SS	MS	F	P
Within+residual	88	181.63	12.06		
Time	1	11.35	11.35	5.50	.02
GroupXTime	4	4.99	1.25	.60	

M6 Pre post MANOVA EDE empty stomach

Source of Variance	DF	SS	MS	F	P
Within+residual	88	294.93	3.35		
Time	1	149.81	149.81	44.70	.0001
GroupXTime	4	13.20	3.30	.98	.42

M7 One Way ANOVA EDE Avoidance of eating-food Post

Source of Variance	DF	SS	MS	F	P
Between groups	4	63.96	15.99	2.88	.03
Within groups	88	488.31	5.54		
Total	92	552.27			

Pre post MANOVA

Source of Variance	DF	SS	MS	F	P
Within+residual	88	345.83	3.93		
Time	1	84.97	84.97	21.62	.0001
GroupXTime	4	23.67	5.92	1.51	.20

M8Pre post MANCOVA EDE Dietary rules

Source of Variance	DF	SS	MS	F	P
Within+residual	144	374.69	2.60		
Time	3	5.06	1.65	0.65	.58
GroupXTime	9	66.82	7.42	2.85	.004

M9 One Way ANOVA Total Restraint post

Source of Variance	DF	SS	MS	F	P
Between groups	4	800.60	200.15	3.16	.02
Within groups	88	5573.86	63.33		
Total	92	6374.47			

Pre post MANOVA

Source of Variance	DF	SS	MS	F	P
Within+residual	88	4224.14	48.00		
Time	1	2111.04	2111.04	43.98	.0001
GroupXTime	4	301.51	73.38	1.577	.18

Table M10 One Way ANOVA EDE Subjective loss of control post

Source of Variance	DF	SS	MS	F	P
Between groups	4	127.63	31.90	9.04	.0001
Within groups	88	310.61	3.52		
Total	92	438.25			

One Way ANOVA 12 MTHS

Source of Variance	DF	SS	MS	F	P
Between groups	4	36.87	12.29	3.19	.03
Within groups	88	188.29	3.84		
Total	92	225.16			

Pre post MANOVA

Source of Variance	DF	SS	MS	F	P
Within+residual	88	173.24	1.97		
Time	1	130.29	130.29	66.18	.0001
GroupXTime	4	47.68	11.92	6.05	.0001

Table M11 EDE Objective bulimic days

Source of Variance	DF	SS	MS	F	P
Between groups	4	19.69	4.92	7.56	.0001
Within groups	88	57.30	.65		
Total	92	77.00			

One way ANOVA 12 mths

Source of Variance	DF	SS	MS	F	P
Between groups	4	8.60	2.86	4.23	.009
Within groups	88	33.20	.66		
Total	92	41.80			

Pre post MANOVA

Source of Variance	DF	SS	MS	F	P
Within+residual	88	23.96	.27		
Time	1	23.98	23.98	88.10	.0001
GroupXTime	4	10.26	2.57	9.42	.0001

Table M 12 EDE Duration of binge post

Source of Variance	DF	SS	MS	F	P
Between groups	4	76.59	19.14	6.15	.0002
Within groups	88	273.66	3.10		
Total	92	350.25			

Pre post MANOVA

Source of Variance	DF	SS	MS	F	P
Within+residual	88	133.86	1.52		
Time	1	38.55	38.55	25.34	.0001
GroupXTime	4	44.36	11.09	7.29	.0001

Table M 13 EDE fullness post

Source of Variance	DF	SS	MS	F	P
Between groups	4	81.12	20.28	4.20	.003
Within groups	88	424.93	4.82		
Total	92	506.06			
EDE Fullness 12 mths					
Source of Variance	DF	SS	MS	F	P
Between groups	4	71.72	23.90	4.89	.004
Within groups	88	239.55	4.88		
Total	92	311.28			
Pre post MANOVA					
Source of Variance	DF	SS	MS	F	P
Within+residual	88	212.49	2.41		
Time	1	79.66	79.66	32.99	.0001
GroupXTime	4	46.65	11.66	4.83	.001

Table M14 One way ANOVA EDE Total overeating score post

Source of Variance	DF	SS	MS	F	P
Between groups	4	1959.21	489.80	8.61	.0001
Within groups	88	5003.36	56.85		
Total	92	6962.58			
12 mths					
Source of Variance	DF	SS	MS	F	P
Between groups	4	804.60	268.20	3.85	.014
Within groups	88	3406.26	69.51		
Total	92	4210.86			
Pre post MANOVA					
Source of Variance	DF	SS	MS	F	P
Within+residual	88	1826.44	20.75		
Time	1	3284.80	3284.80	158.27	.0001
GroupXTime	4	1659.51	414.88	19.99	.0001

Table M15 One way ANOVA EDE Eating preoccupation post

Source of Variance	DF	SS	MS	F	P
Between groups	4	85.65	21.41	4.09	.004
Within groups	88	460.60	5.23		
Total	92	546.25			
Pre post MANOVA					
Source of Variance	DF	SS	MS	F	P
Within+residual	88	259.82	2.95		
Time	1	134.36	134.36	45.51	.0001
GroupXTime	4	42.52	10.63	3.60	.0001

Table M16 One way ANOVA EDE Fear of loss of control post

Source of Variance	DF	SS	MS	F	P
Between groups	4	136.07	34.01	6.81	.0001
Within groups	88	439.23	4.99		
Total	92	575.31			
Pre post MANOVA					
Source of Variance	DF	SS	MS	F	P
Within+residual	88	268.46	3.05		
Time	1	120.01	120.01	39.34	.0001
GroupXTime	4	55.00	13.75	4.51	.002

Table M17 One way ANOVA EDE Social eating post

Source of Variance	DF	SS	MS	F	P
Between groups	4	52.64	13.16	2.92	.02
Within groups	88	396.25	4.50		
Total	92	448.90			
Pre post MANOVA					
Source of Variance	DF	SS	MS	F	P
Within+residual	88	227.12	2.58		
Time	1	42.60	42.60	16.51	.0001
GroupXTime	4	28.69	7.17	2.78	.032

Table M18 EDE Secret eating One Way ANOVA Post

Source of Variance	DF	SS	MS	F	P
Between groups	4	49.81	12.45	2.99	.02
Within groups	88	366.30	4.16		
Total	92	416.12			
EDE Secret Eating Pre post MANOVA					
Source of Variance	DF	SS	MS	F	P
Within+residual	88	274.33	3.12		
Time	1	115.23	115.23	36.94	.0001
GroupXTime	4	24.19	6.05	1.94	.11

Table M19 Pre post MANOVA EDE Guilt about eating

Source of Variance	DF	SS	MS	F	P
Within+residual	88	420.13	4.77		
Time	1	87.20	87.20	18.26	.0001
GroupXTime	4	49.36	12.34	2.58	.04

Table M20 One way ANOVA EDE Total eating concern post.

Source of Variance	DF	SS	MS	F	P
Between groups	4	1281.49	320.37	4.60	.002
Within groups	88	6127.53	69.63		
Total	92	7409.03			

Pre post MANOVA

Source of Variance	DF	SS	MS	F	P
Within+residual	88	3104.49	35.28		
Time	1	2670.28	2670.28	75.69	.0001
GroupXTime	4	817.84	204.46	5.80	.0001

Table M21 One way ANOVA EDE Shape dissatisfaction post

Source of Variance	DF	SS	MS	F	P
Between groups	4	66.43	16.60	3.59	.009
Within groups	88	406.55	4.62		
Total	92	472.98			

Pre post MANOVA

Source of Variance	DF	SS	MS	F	P
Within+residual	88	209.25	2.38		
Time	1	46.10	46.10	19.39	.0001
GroupXTime	4	24.21	6.05	2.55	.04

Table M22 Pre post MANCOVA EDE Shape Preoccupation

Source of Variance	DF	SS	MS	F	P
Within+residual	144	250.91	1.74		
Time	3	13.43	4.48	2.57	.05
GroupXTime	9	20.67	2.30	1.32	.23

Table M23 One way ANOVA EDE Shape importance post

Source of Variance	DF	SS	MS	F	P
Between groups	4	61.19	15.29	3.89	.005
Within groups	88	345.45	3.92		
Total	92	406.64			

Pre post MANOVA

Source of Variance	DF	SS	MS	F	P
Within+residual	88	186.13	2.12		
Time	1	84.61	84.61	40.00	.0001
GroupXTime	4	29.85	7.46	3.53	.01

Table M24 One way ANOVA EDE Fear of fatness post

Source of Variance	DF	SS	MS	F	P
Between groups	4	151.41	37.85	7.48	.0001
Within groups	88	445.31	5.06		
Total	92	596.73			

Pre post MANOVA

Source of Variance	DF	SS	MS	F	P
Within+residual	88	239.93	2.73		
Time	1	143.56	143.56	52.66	.0001
GroupXTime	4	70.86	17.71	6.50	.0001

Table M25 One way ANOVA EDE Feelings of fatness post

Source of Variance	DF	SS	MS	F	P
Between groups	4	76.93	19.23	3.59	.009
Within groups	88	470.63	5.34		
Total	92	547.56			
Pre post MANOVA					
Source of Variance	DF	SS	MS	F	P
Within+residual	88	234.63	30.97		
Time	1	82.57	82.57	30.97	.0001
GroupXTime	4	59.74	14.94	5.60	.0001

Table M26 Pre post MANOVA EDE Flat stomach

Source of Variance	DF	SS	MS	F	P
Within+residual	88	281.55	3.20		
Time	1	104.40	104.40	32.63	.0001
GroupXTime	4	49.96	12.49	3.90	.006

Table M27 Pre post MANOVA EDE Desire to lose weight

Source of Variance	DF	SS	MS	F	P
Within+residual	88	283.64	3.22		
Time	1	80.29	80.29	24.91	.0001
GroupXTime	4	41.72	10.43	3.24	.01

Table M28 One way ANOVA EDE Weight dissatisfaction post

Source of Variance	DF	SS	MS	F	P
Between groups	4	59.42	14.85	2.75	.03
Within groups	88	474.18	5.38		
Total	92	533.61			
Pre post MANOVA					
Source of Variance	DF	SS	MS	F	P
Within+residual	88	283.64	3.22		
Time	1	80.29	80.29	24.91	.0001
GroupXTime	4	32.95	8.24	2.90	.027

Table M29 One way ANOVA EDE Weight importance post

Source of Variance	DF	SS	MS	F	P
Between groups	4	81.11	20.27	5.38	.0006
Within groups	88	331.53	3.76		
Total	92	412.64			
Pre post MANOVA					
Source of Variance	DF	SS	MS	F	P
Within+residual	88	155.38	1.77		
Time	1	64.28	64.28	36.40	.0001
GroupXTime	4	29.21	7.30	4.14	.004

Table M30 One way ANOVA BDI Post

Source of Variance	DF	SS	MS	F	P
Between groups	4	1736.51	434.12	2.96	.02
Within groups	88	12884.14	146.40		
Total	92	14620.66			
Pre post MANOVA					
Source of Variance	DF	SS	MS	F	P
Within+residual	88	4496.94	51.10		
Time	1	2656.12	2656.12	51.98	.0001
GroupXTime	4	327.67	81.92	1.60	.18

Table M31 One way ANOVA EDI Drive for thinness post

Source of Variance	DF	SS	MS	F	P
Between groups	4	419.87	104.96	2.66	.03
Within groups	88	3463.69	19.36		
Total	92	3883.56			
Pre post MANOVA					
Source of Variance	DF	SS	MS	F	P
Within+residual	88	1381.02	15.69		
Time	1	580.29	580.29	36.98	.0001
GroupXTime	4	182.59	45.65	2.91	.02

Table M32 One way ANOVA EDI Bulimia post

Source of Variance	DF	SS	MS	F	P
Between groups	4	529.05	132.64	4.11	.004
Within groups	88	2825.58	32.10		
Total	92	3354.64			
Pre post MANOVA					
Source of Variance	DF	SS	MS	F	P
Within+residual	88	1271.72	14.45		
Time	1	774.75	774.75	53.61	.0001
GroupXTime	4	216.78	54.19	3.75	.007

Table M33 Pre post MANOVA EDI Body Dissatisfaction

Source of Variance	DF	SS	MS	F	P
Within+residual	88	2004.71	22.78		
Time	1	366.55	366.55	16.09	.0001
GroupXTime	4	185.69	46.42	2.04	.096

Table M34Pre post MANOVA EDI Ineffectiveness

Source of Variance	DF	SS	MS	F	P
Within+residual	88	1662.60	18.89		
Time	1	374.93	374.93	19.84	.0001
GroupXTime	4	65.03	16.26	.86	.49

Table M35 Pre post MANOVA EDI Interpersonal distrust

Source of Variance	DF	SS	MS	F	P
Within+residual	88	611.99	6.95		
Time	1	78.91	78.91	11.35	.001
GroupXTime	4	25.15	6.29	.90	.46

Table M36 Pre post MANOVA EDI Interceptive awareness

Source of Variance	DF	SS	MS	F	P
Within+residual	88	2324.99	26.42		
Time	1	810.54	810.54	30.68	.0001
GroupXTime	4	181.47	45.37	1.72	.15

Table M37 One way ANOVA EDI Maturity fears 12 mths

Source of Variance	DF	SS	MS	F	P
Between groups	4	75.09	25.03	2.97	.04
Within groups	88	412.23	8.41		
Total	92	487.32			
Pre post MANOVA					
Source of Variance	DF	SS	MS	F	P
Within+residual	88	713.38	8.11		
Time	1	39.39	39.39	4.86	.03
GroupXTime	4	92.99	23.25	2.87	.02

Table M38 One way ANOVA Total EDI post

Source of Variance	DF	SS	MS	F	P
Between groups	4	13393.98	3348.49	2.58	.04
Within groups	88	114165.83	1297.33		
Total	92	127559.82			
Pre post MANOVA					
Source of Variance	DF	SS	MS	F	P
Within+residual	88	33559.59	381.36		
Time	1	19376.78	19376.78	50.81	.0001
GroupXTime	4	3680.00	920.00	2.41	.05

Table M39 Pre post MANOVA POMS Tension

Source of Variance	DF	SS	MS	F	P
Within+residual	88	3259.40	37.04		
Time	1	702.61	702.61	18.97	.0001
GroupXTime	4	120.54	30.14	.81	.52

Table M40 One way ANOVA POMS Depression post

Source of Variance	DF	SS	MS	F	P
Between groups	4	2658.11	664.52	2.89	.02
Within groups	88	201.99	229.54		
Total	92	22857.69			

Pre post MANOVA

Source of Variance	DF	SS	MS	F	P
Within+residual	88	9741.31	110.70		
Time	1	4905.80	4905.80	44.32	.0001
GroupXTime	4	874.75	218.69	1.98	.10

Table M41 Pre post MANOVA POMS Anger

Source of Variance	DF	SS	MS	F	P
Within+residual	88	3669.12	41.69		
Time	1	813.94	813.94	19.52	.0001
GroupXTime	4	255.95	63.99	1.53	.19

Table M42 Pre post MANOVA POMS Fatigue

Source of Variance	DF	SS	MS	F	P
Within+residual	88	2714.50	30.85		
Time	1	588.89	588.89	19.09	.0001
GroupXTime	4	97.11	24.28	.79	.55

Table M43 Pre post MANOVA POMS Confusion

Source of Variance	DF	SS	MS	F	P
Within+residual	88	1909.18	21.70		
Time	1	490.43	490.43	22.61	.0001
GroupXTime	4	128.76	32.19	1.48	.21